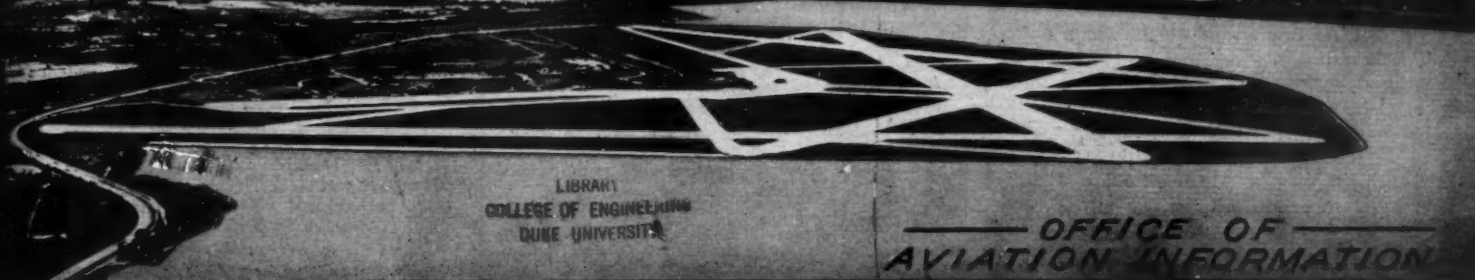


# CA JOURNAL



## President's Survey Group Submits Airports Report

Findings and recommendations of the President's Airport Commission have been made public in a report entitled "The Airport and Its Neighbors."

The Commission, organized under a Presidential directive issued February 20, was composed of: Lt. General James H. Doolittle, Vice-President, Shell Oil Corporation, Chairman; Dr. Jerome C. Hunsaker, Head of the Department of Aeronautical Engineering, Massachusetts Institute of Technology; and Charles F. Horne, Administrator of Civil Aeronautics. S. Paul Johnson, Director of the Institute of Aeronautical Sciences, was Executive Secretary and Staff Director.

Representatives of a large number of organizations, both within government and without, met with the Commission to give their views on the problems before it. The Commission also sent a questionnaire to the mayors of 104 cities of the United States where airports were considered critical, either from the standpoint of population or high traffic density.

The Commission and its staff made a survey of 16 major airports throughout the United States. A series of meetings were held in New York City. Field inspections and conferences were conducted at other airports by members of the Commission and its staff. Altogether some 30 airports were personally inspected by the Commission or its staff.

Part I of the Commission's final report, which contains a complete summary of the Commission's findings and all its specific recommendations, follows.

### Summary of the Report

The task of the President's Airport Commission has been to consider means to safeguard the lives of people living in the vicinity of airports and to alleviate for them, as far as possible, the disturbance that arises from the operation of aircraft. As directed by the President, the Commission has studied these problems in the light of an urgent need for continued development of both civil and military aeronautics for the welfare and safety of this country.

Establishment of the Commission was an outgrowth of a sequence of tragic accidents in the New York-Northeastern New Jersey metropolitan area. The fact that these mishaps were confined, by coincidence, to a single community accentuated fears of many Americans that aircraft represent a serious hazard to ground-dwellers. They also served to increase

awareness of nuisance aspects in the use of airports, particularly with regard to noise. As the result of a careful and detailed study of both hazard and nuisance factors, the Commission feels that a great deal is being done to protect the people; it also feels that more could and should be done.

Along with every other vehicle invented and used by modern man, aircraft suffer occasional accidents with resulting fatalities to their occupants. More rarely, people and property on the ground are also involved. Incidents of this sort are most likely to occur near airports because operations are somewhat more hazardous at terminals than en route. Current improvements in equipment and in operational pro-

(Continued on page 56)

## Major Airports Getting Improved ILS Equipment

Operation of the Instrument Landing System, (ILS) used to guide aircraft to landings at major airports, will be improved by new dual transmitters installed by the Civil Aeronautics Administration.

The ILS, located on the airport, sends two directional radio beams into space. One beam, called the localizer, gives the pilot right-left guidance. The other, called the glide slope, tells the pilot how to fly on the correct angle of descent. By watching instruments in the cockpit, the pilot flies down an invisible radio "highway" to the airport.

New glide slope transmitters are being installed as rapidly as equipment is received from the manufacturer. The new transmitters, installed in duplicate to provide standby service, will replace war surplus transmitters at the 98 domestic airports now served by

(Continued on page 62)

## CAA Opens Vast New Airways Network

Forty-five thousand miles of very high frequency airways in the domestic United States have been added to the existing 65,000 miles of low-frequency airways.

Charles F. Horne, Administrator of Civil Aeronautics, U. S. Department of Commerce, announced that the new airways will eventually largely replace the existing airway network. In most cases the new airways are superimposed upon, or follow rather closely, the existing routes.

Pilots fly the new airways by using omniranges, modern very high frequency radio ranges which offer many advantages over the older four-course ranges. The omniranges are located approximately 100 miles apart along the new airways.

The new airways will be referred to as "Victor" airways, and are numbered like highway routes. Odd-numbered Victor airways will run north and south,

while even numbers will designate east-west routes.

Of the 45,000 miles of new airways, 35,000 miles are primary routes and 10,000 miles are alternate routes. The alternate routes are referred to by their geographical locations, as, for example, "Victor three East" or "Victor three West." Additional mileage will be added to the Victor system as rapidly as facilities are completed.

The Victor airways, like the low-frequency airways, are 10 statute miles in width. For traffic control purposes to insure safe separation of aircraft, each airway is divided into 1000-foot vertical lanes.

The Coast and Geodetic Survey has prepared charts for users of the Victor airways. These have been mailed to subscribers, stamped with the June 1 effective date. The new charts show distances in nautical miles with the corresponding distance in statute miles appearing in parenthesis.

# Steel "Mattress" Developed by CAA For Testing Airport Paving Material

A man ten feet tall, and weighing 100 tons, could sleep comfortably on an innerspring mattress developed by the CAA at the CAA's Technical Development and Evaluation Center at Indianapolis, Ind.

The 3,600 springs on the 10-foot-square mattress would cradle such a man gently, flexing to his every contour as he tosses at night. An ordinary man, however, would find sleep difficult, because all his weight would scarcely flex a single spring.

This mattress-like device is used to learn what happens underneath an asphalt pavement when a heavy airplane taxis over the surface. The asphalt is flexible, and transmits its load to the gravel or other base material beneath it. This pressure, in turn, is carried to the sub-base beneath. Is such pressure vertical only, or does it spread out pyramid-fashion, or bulb-shaped beneath the pavement? How does the pressure distribution vary with different base materials? At what point do the various materials break down?

This type of information is vitally important in airport design, and definite answers to such questions may save millions of tax dollars. Failure of flexible runway and taxiway paving is costly to municipalities, the military services, and commercial airport operators. Equally wasteful is the practice of "over-designing," in which an unnecessary thickness of base material is sometimes used "just to be sure." Inflexible surfaces, such as concrete, have definite breaking points. But little has been known about gradual deformation beneath flexible paving like asphalt.

**Hydraulic Press "Loads" Tire.**—The mattress device at the Center is used to support a test section of base material and paving. A powerful press forces an airplane tire down onto the surface. By measuring the deflection of each of the 3,600 springs under the base material, the pressure pattern for the particular material under study can be determined accurately.

The surface of the mattress consists of 3,600 steel plates, each 2 inches square, placed side by side in 60 rows of 60 plates each. Each plate is supported by a steel plunger, which in turn operates against a coil spring. Pressure on the plate pushes the plunger downward. Since the amount of pressure necessary to move a spring a certain distance is known, the deflection reveals the amount of pressure transmitted downward from the airplane wheel to the particular plate involved. The amount of deflection of each plate is measured from below by a micrometer.

The hydraulic jacks used to put pressure on the airplane wheel have a capacity of 250,000 pounds—greater than the weight applied through a single wheel of even the largest aircraft, but necessary for adequate test purposes. Several sets of springs are used, depending on the material to be tested and the pressure which is applied.

The CAA technicians "make the bed" by putting a rubber sheet over the mattress, and then placing compacted material to be tested over the sheet. The sheet keeps gravel, sand, etc., from getting into the spring mechanisms below.

**Radar Simulator.**—In another project, the guess-work in radar control of air traffic is being eliminated and untried theories carefully tested by a huge radar simulator.

Knowledge of how best to use radar in controlling traffic near congested areas has heretofore been limited by lack of experimental information. To experiment with real aircraft during bad weather would, of course, be fantastically expensive.

Effective traffic control tests can be achieved with the simulator which is operated in a large room

at the Center.

In testing various systems, as many as 13 "pilots" can "fly" their planes at one time under the direction of an air traffic controller. The path of each plane shows as a dot of light on a 144-square-foot translucent screen, on which simultaneously is projected a map of the area presenting a problem.

With the aid of the simulator, complex problems can be worked out in a few hours. Merely by changing the projected map, radio ranges and other airways aids can be "moved" to new locations on a trial basis, and the planes "flown" accordingly.

The simulator project is sponsored by the Air Navigation Development Board, a joint military-civil agency. It is used to develop radar procedures for both military and civil aviation.

Each "pilot" sits at a console equipped with dials to control the "speed" and "heading" of his plane. Some of the consoles represent small personal-type aircraft; others have the speed ranges of fast four-engine equipment.

Each "pilot" is connected by two-way telephone to the air traffic controller, who sits at the far end of the room behind the translucent screen. The controller, watching the big "radar screen", directs the pilots to fly courses, and assigns speeds and altitudes, in the same way he would direct traffic from a radar scope in a tower or center.

**The Human Element.**—The human element plays an important part in these tests, since there are instances when the "pilots" misunderstand instructions, or make errors in carrying them out, just as real pilots sometimes make mistakes.

One of the "pilot positions" has been placed in a Link Trainer in a different part of the building to test pilot reaction to radar control under instrument conditions, and to determine how effectively pilots can carry out various types of instructions.

The white spots representing the radar targets on the screen are supplied by a battery of projectors, each connected to a pilot console. Each change in speed, direction, etc., made by the "pilot" is faithfully translated, through a complex motor system, into a corresponding movement of the white dot.

Chief difficulty so far encountered with the simulator is that it works too well. The projected pips are much brighter and clearer than on an actual radar scope, making the work of the controller easier than it would be in actual practice. Also, the projected white spots fail to leave "trails" behind them, as they do on a real scope.

The CAA center is building equipment to overcome these difficulties by televising the large screen, and presenting the information to the controller on a standard radar scope.

## Braniff-Mid-Continent Merger Approved

The Civil Aeronautics Board has approved the application of Braniff Airways and Mid-Continent Airlines for authority to merge the two companies, with Braniff to be the surviving company and to operate the routes of Mid-Continent. The Board's approval provided for labor protective conditions to protect employees who might be adversely affected by the merger. The agreement contemplates an exchange of 1 share of Braniff stock for each 1½ shares of Mid-

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## CAA JOURNAL

DEPARTMENT OF COMMERCE  
Charles Sawyer, Secretary

Civil Aeronautics Administration  
Charles F. Horne, Administrator

Ben Stern, Director  
Office of Aviation Information

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## CAA and CAB Releases

Copies of CAA releases may be obtained from the CAA Office of Aviation Information. CAB releases are obtainable from the Public Information Section of the Board.

### Administration

CCA to Assist in Getting Materials to Restore Flood Damaged Airports—(CAA 52-19) (May 5.)  
Huge New Airway Network Opens June 1—(CAA 52-20) (May 20.)

CAA Warns Pilots on Use of Amphetamine Drugs—(CAA 52-21) (May 26.)

CAA Announces Revised Fees for Landing at Washington National—(CAA 52-22) (May 28.)

CAA Installs New Plane Landing Aid—(CAA 52-23) (June 2.)

Address by Charles F. Horne, Administrator of Civil Aeronautics, to U. S. Conference of Mayors, Waldorf-Astoria Hotel, New York, N. Y., May 17, 1952. "Aviation and the American City."

### Board

CAB Proposes Insurance Requirement for Air Carriers and Foreign Air Carriers—(CAB 51-32) (May 2.)

Board Sets Date of Public Hearing in Robin Airlines Crash Near La Habra, Calif.—(CAB 52-33) (May 9.)

CAB Sets Final Mail Rate for Two Alaskan Air Carriers—(CAB 52-34) (May 16.)

Board Disapproves Chicago & Southern-Pan American Interchange Agreement—(CAB 52-35) (May 23.)

Braniff-Mid-Continent Merger Approves by Civil Aeronautics Board—(CAB 52-36) (May 26.)

CAB Renews Piedmont's Certificate—(CAB 52-37) (May 27.)

Continent stock. Consummation of the merger must await favorable action by the stockholders of the two companies and acceptance of the labor protective conditions.

## CAM Supplements and Aviation Safety Releases

(Issued between May 1, 1952 and May 31, 1952, and obtainable from the CAA Office of Aviation Information, Department of Commerce, Washington 25, D. C.)

### Aviation Safety Releases

No.	Date	Subject
360	5/19/52	Distribution of CAA Publications to Foreign Governments.
361	5/19/52	Medical Certification of Military Personnel.

### CAM Supplements

CAM No.	Supplement No.	Date	Title
16	2	5/20/52	Design and Tests.
40	8	5/1/52	Revisions to Ceiling and Visibility Minimums.
41	14	5/27/52	First Aid and Emergency Equipment.
61	12	5/27/52	First Aid Kits.

## U. S. Registered Civil Aircraft

(Totals as of December 31 each year)

State	1947	1948	1949	1950	1951
Alabama	998	996	924	907	787
Arizona	1,164	1,241	1,170	1,156	1,094
Arkansas	1,078	1,172	1,192	1,218	1,119
California	10,221	10,741	10,594	10,298	9,845
Colorado	1,313	1,349	1,265	1,363	1,291
Connecticut	755	706	699	643	601
Delaware	247	232	277	302	283
District of Columbia	933	706	533	548	553
Florida	2,907	2,787	2,548	2,556	2,546
Georgia	1,538	1,419	1,264	1,212	1,159
Idaho	718	841	873	917	905
Illinois	4,503	4,659	4,829	4,909	4,779
Indiana	2,718	2,775	2,733	2,753	2,675
Iowa	2,190	2,388	2,447	2,451	2,276
Kansas	2,719	3,119	2,795	2,797	2,462
Kentucky	835	869	821	799	678
Louisiana	984	1,051	1,066	1,145	1,105
Maine	605	636	650	632	583
Maryland	1,184	1,023	810	862	859
Massachusetts	1,454	1,425	1,398	1,412	1,402
Michigan	4,695	4,450	4,249	4,172	3,914
Minnesota	2,073	2,139	2,112	2,146	2,048
Mississippi	720	714	690	728	762
Missouri	2,404	2,315	2,140	2,116	1,892
Montana	845	1,027	1,098	1,113	1,111
Nebraska	1,534	1,761	1,794	1,863	1,790
Nevada	422	418	384	401	390
New Hampshire	304	308	288	278	235
New Jersey	1,650	1,672	1,682	1,772	1,767
New Mexico	785	763	744	769	708
New York	4,797	4,661	4,472	4,386	4,308
North Carolina	1,817	1,790	1,714	1,694	1,627
North Dakota	851	1,077	1,235	1,293	1,256
Ohio	4,789	4,414	4,144	4,267	4,187
Oklahoma	2,368	2,453	2,284	2,212	1,994
Oregon	1,619	1,795	1,809	1,803	1,747
Pennsylvania	4,393	4,248	4,063	4,104	4,006
Rhode Island	199	204	198	211	203
South Carolina	836	758	705	678	621
South Dakota	746	914	979	1,034	1,017
Tennessee	1,306	1,228	1,106	1,024	924
Texas	8,347	7,856	6,983	6,998	6,404
Utah	542	534	519	535	479
Vermont	187	212	201	168	153
Virginia	1,437	1,459	1,390	1,363	1,272
Washington	2,043	2,231	2,229	2,224	2,173
West Virginia	660	670	670	655	615
Wisconsin	2,013	2,202	2,125	2,098	2,006
Wyoming	428	506	525	532	517
Outside U. S.	947	1,083	1,202	1,292	1,417
Total	94,821	95,997	92,622	92,809	88,545

## Accident Reports . . . .

**Propeller Reversed in Flight.**—Reversal in flight of No. 3 propeller with relatively high power and the subsequent feathering of No. 4 propeller probably caused the crash of a National Airlines plane at Elizabeth, New Jersey, February 11, the Civil Aeronautics Board decided.

The plane crashed and burned after striking an apartment house shortly after take-off from the Newark Airport. There were 63 persons on board the aircraft, including a crew of 4. Of these, 26 passengers and 3 crew members lost their lives, together with 4 persons in the apartment house.

Mechanical difficulty developed shortly after the plane took off. If the crew did not immediately recognize that a propeller had reversed in flight, the Board, said, attention might well have been directed to the outboard engine which in the event of loss of power would produce a more severe yaw than would an inboard engine. "It is reasonable to assume that the comparatively violent maneuver, which occurred at low altitude and low air speed, created an emergency with such attendant urgency in the cockpit that the crew did not have sufficient time to make a cor-

## Civil Aeronautics Board

rect analysis of the difficulty," the Board said. "Under the conditions the feathering of the No. 4 propeller appears to have been a logical action. The feathering of this propeller with the No. 3 propeller operating in reverse pitch at appreciable power would adversely affect performance resulting in a high rate of descent. However, had the aircraft been equipped with reverse pitch indicating lights in the cockpit, the malfunctioning propeller could have been readily identified and the No. 4 propeller undoubtedly would not have been feathered."

**Engine Caught Fire.**—A stall with the landing gear extended, following a serious loss of power from the right engine, was the probable cause of the crash of a Miami Airlines plane at Elizabeth, New Jersey, December 16, 1951, in which all 56 occupants of the plane were killed, the Board found.

"This loss of power was caused by the failure of the hold-down studs of the No. 10 cylinder, precipitating a fire in flight which became uncontrollable," the Board said. The failure from fatigue of these hold-down studs, due to improper installation of their nuts, caused the cylinder to separate completely from the crankcase during or shortly after take-off, the report stated.

An abnormal amount of smoke trailed from the right engine during runup, take-off, and climb. However, the plane continued straight ahead for a distance of approximately 4 miles, slowly gaining an altitude of approximately 800 to 1,000 feet. While attempting to return to the Newark airport, the aircraft stalled at an altitude of approximately 200 feet, fell sharply to its left, struck buildings, and crashed on the bank of the Elizabeth River.

**Inadvertent Spin Fatal.**—An inadvertent spin at an altitude too low for recovery was the probable cause of an accident near Denver, Colo., December 4, 1951, when a United Air Lines trainer crashed on a training flight, the Board found. The accident was fatal to the three occupants—a flight instructor and two first officer trainees.

The aircraft stalled at an altitude of approximately 3,200 feet above the ground, entered a spin, and crashed before recovery could be effected. No evidence of malfunctioning or failure was indicated by an examination of the wreckage, the Board said. Power was being developed by both engines upon impact.

**Cause Not Determined.**—Evidence available at this time is insufficient to determine a probable cause of the American Airlines accident at Elizabeth, New Jersey, on January 22, the Board said.

All 20 passengers and 3 crew members were killed. Considerable damage resulted to buildings and seven persons in the buildings were fatally injured. The flight, which had originated at Buffalo, N. Y., was approaching the Newark airport for a landing under instrument conditions when the crash occurred.

"Although the facts are inconclusive as to the probable cause of this accident," the Board's report stated, "there is some evidence to indicate that carburetor icing, followed by severe surging, occurred."

Correspondence concerning the Civil Aeronautics Journal, other than subscriptions, should be addressed to the Office of Aviation Information, Civil Aeronautics Administration, Washington 25, D.C.

# Report on Safety Survey Presented

## By President's Airport Commission

(Continued from page 53)

cedures, however, offer the possibility that accidents of all kinds will be further reduced. Accidents involving aircraft on airways and at air terminals should eventually fall well below rates now considered normal for other forms of commercial transportation.

The same favorable trend cannot be forecast as confidently for the nuisance factors. Exhaust mufflers and slow-turning multi-blade propellers of large diameter have been applied successfully to quiet small airplanes. As aircraft become larger and faster, the power required to propel them and the resultant noise multiplies many fold. Some noise reduction can be achieved, even in these large aircraft, by reduced propeller tip speed and by removing more energy from exhaust gases, but reducing their noise to comfortable proportions still presents a difficult problem.

In the future, with wider use of high speed turbine-driven propellers or high thrust jet-propulsion, there will be a tendency for the volume of noise to increase beyond levels now experienced and for the character of the noise to become more objectionable. Research is now under way in these areas, but the problems are technically difficult and no effective solutions are in sight.

**Airport Growth.**—The growth of air transportation has put a severe strain on many major airports. Original facilities for handling airplanes in the air and on the ground and for taking care of passengers, mail, express and freight in terminal buildings have been outgrown. Many airports are approaching saturation. Some of them are badly out of balance due to a deficiency in one or another of their facilities. For example, some of our large municipal airports now have traffic control capabilities permitting a great many landings and take-offs per hour but their runways or their servicing facilities on the ground have not kept pace. In some cases runways which were once adequate in strength will not now support today's heaviest airplanes. Larger and faster airplanes making more landings and take-offs in worse weather will call for more adequate runways, larger clear approach areas and improved traffic control facilities and procedures.

Definite traffic patterns have been established by the Civil Aeronautics Administration at every major terminal airport in the country. These flight tracks have been designated after careful consideration of all flight safety factors. Serious efforts are being made to reduce ground hazard and noise. Eventually airports and their runways should be planned so that all approach and holding patterns minimize flights over thickly settled areas.

Tighter control of aircraft near airports must be achieved. To accomplish this, necessary equipment must be developed, procured and installed. Once adequate facilities are operational, positive traffic control at congested airports should be insisted upon at all times, even under what are now considered Visual Flight Rule conditions. The ceiling and visibility limits for VFR flights in congested terminal areas and the minimum ceilings and visibilities under which aircraft are permitted to circle and maneuver after instrument approach should be raised.

Airport use becomes more complicated when there is joint use by civil aviation and the armed services. In the interest of economy it is common practice for air defense, military air transport or air reserve training units to be based on municipal airports. Combat airplanes are generally noisy and will probably become noisier with the advent of more powerful jet types. Because of the noise of military operations (especially on week ends) and because accidents have

occurred, people living near such airports have complained. Joint military and civil use of major airports is undesirable. Separation should be effected whenever it is economically feasible. Military training operations over thickly settled regions should be prohibited.

In some cases, manufacturing plants are located on busy civil airports and both experimental and production aircraft are being flown from these airports. Recognizing the potential hazard involved, especially with the very fast jet types, some manufacturers have established test facilities on remote airports, and are making trial and shakedown flights away from congested areas. Whenever practicable this should be required. Flight delivery of production aircraft may be permitted under proper procedures and under conditions where nuisance and hazard to the surrounding community are reduced to the minimum.

**Community Encroachment.**—Another aspect of the problem deals with the technical and economic forces which are pressing for airport expansion and which, in turn, are opposed by the encroachment of the surrounding community. Many communities are approaching an impasse arising from limitations to safe operation on existing airports combined with a physical inability to improve or extend them because homes or factories have been built close to the runway ends.

The pattern of development for major airports has been historically similar. Twenty years ago when airplanes were small in size and few in number, airport sites were selected at a distance beyond the city limits where ground was cheap and where few buildings obstructed the natural approaches to the field. Few then complained of the noise because it was infrequent and not very loud. As a matter of fact, this audible evidence of the arrival and departure of mail and passenger airplanes was often a source of local pride.

Normal growth, greatly augmented by the wartime movement of people to the cities, caused a spreading out toward the airport. Furthermore, the airport and its activities frequently acted as a magnet, drawing first the sightseer and then the businessman interested in concessions. Because desirable land was cheap, and a new and advantageous type of transportation was available, industries (sometimes aeronautical, sometimes not) settled near the airport.

Attached to all of these enterprises were people. People required homes within a short distance of their jobs. Speculators saw the opportunity to subdivide cheap land at a profit. Public utilities established primarily for the airport could be made available to the adjacent housing. Villages emerged, complete with shopping centers, schools, hospitals and recreation facilities. As a consequence, many municipal airports which were started less than two decades ago in the open country were progressively surrounded by residential and industrial areas.

The immediate problem is to find a way to protect present airports and the people residing near them by applying some means of control of ground use in approach zones. Local authorities should prevent further use of land for public and residential buildings near the ends of existing runways. If this is not done, new contingents of home owners will be added to the ranks of those who are now protesting against noise and hazard. In time public pressure may threaten the continued existence of the airport and large investments of public and private funds will be jeopardized.

**Zoning.**—This Commission has two suggestions to make in this connection: (1) that certain extensions

or over-run areas be incorporated in the airport itself, and (2) that larger areas beyond such extensions be zoned by proper authority, not only to prevent the erection of obstructions that might be harmful to aircraft, but also to control the erection of public and residential buildings as a protection from nuisance and hazard to people on the ground.

Many airports already maintain cleared areas beyond the ends of paved runways to reduce the danger from accidental over-runs on landings, or from aborted take-offs. The Commission feels that no new airport should be planned without clear and, if possible, level areas at least 1,000 feet wide and at least one-half mile long beyond each end of the dominant runways. These areas should be incorporated within the boundaries of the airport.

Beyond such extensions, the problem of control of the use of the land in approach zones becomes more difficult because of the large area involved. For reasons shown elsewhere in this report, it would be desirable to protect approaches to dominant runways for a distance of at least two miles beyond the runway extensions. Such protective zones should be fan-shaped with a width of at least 6,000 feet at the outer ends.

Outright ownership of sufficient land at each end of the dominant runways would provide the best solution. There is no legal question but that airports engaged in interstate commerce are a public utility for which public funds may be expended. Also, there is no legal question but that States, counties and municipalities may join together to condemn land (where enabling legislation exists) outside the boundary of any one municipality for airport purposes. The cost of acquisition of sufficient land, however, is frequently beyond the capabilities of a single community.

Where it is not economically feasible to purchase such tracts of land so that absolute control of their use could be maintained, reliance must be placed on zoning laws to protect both the aircraft using the airport from obstructions to flight and the people on the ground from hazard and noise.

Although there are legal means to zone approach areas to protect aircraft from collision with obstructions, no zoning laws have been enacted to the knowledge of this Commission to control land use generally in approach zones. Consideration of basic property rights raises the question in both cases as to whether or not such control of use constitutes a "taking" of the property, and as such should be compensable to the owners.

Traditionally the power to control the use of land rests with the States and may be delegated to counties and local communities. The Federal Government should, however, propose model airport protective legislation for enactment by the States, and should help where practicable toward reaching a satisfactory solution of this type of zoning problem.

It is recommended that the responsibility for zoning be left with the States and their political subdivisions, at least for the present, and until they have had a full opportunity to cope with the problem under adequate Federal guidance. It is further suggested that the Federal Government commit no funds for new airport construction unless the State, or other local authority gives reasonable assurance that the air approaches to the airport will be protected in accordance with the recommendations made herein. The land under the approaches should not be put to any use which might later serve as a basis for an effective argument that the space above should not be used by aircraft. Future residents should not be given any grounds for claims that aircraft approaching or departing from the airport, or which may be involved in accidents, create a nuisance which entitles them to an injunction, to recover damages or to demand that the airport be closed.

The suggestions made above apply particularly to new airports to be laid out in areas free from natural

and artificial obstructions. Such ideal conditions are to be found in a very few localities desirably adjacent to sources of air traffic. For a long time to come, therefore, most airports must make the best of existing conditions even if they fall short of the ultimate airport specifications recommended here.

To promote the general welfare and to protect necessary systems of air transportation, it is essential that the major airports now engaged in interstate commerce, the postal service, or in defense activities be continued in operation. Furthermore, these airports must not be allowed to deteriorate. They must be continually improved to the greatest possible degree along the lines recommended. They should be made to approach the ideal airport as closely as local conditions permit. Local zoning authorities should employ their powers to prohibit further developments which will interfere with appropriate use of existing airports. Here also availability of Federal funds should be dependent upon such local action.

**Federal Assistance.**—Federal aid for construction at airports was inaugurated in the early 1930's. The Federal Airport Act of 1946 set up a continuing program with an authorized maximum expenditure rate of \$100 million per year. In general the program called for financing airport projects on a "Matching" basis, with the Federal Government providing grants-in-aid to the communities concerned. Unfortunately, this program has lagged because of inability to synchronize the availability of Federal and local funds. Such difficulties should be resolved at the earliest possible date. Priority of expenditure of Federal funds should be given to the lengthening of runways and to the acquisition of cleared extensions beyond the runways for incorporation in the airport.

**Runway Design.**—A solution to many aspects of the airport problem is, in the opinion of the Commission, the early acceptance of the single or parallel runway design of airport with approaches over relatively clear areas. By this means, airport development could proceed along economical lines with minimum hazard and annoyance to neighbors. The single or parallel runway airport has one shortcoming—difficulty of operation in strong crosswinds—but this is being overcome through pilot training techniques, the use of tricycle gears and the further development of special cross-wind landing gears.

Too much emphasis has been placed on statistics of prevailing winds, including light and variable airs of little consequence in modern flying practice. As a result large sums still are being programmed unnecessarily for multiple intersecting runway airports, and too little consideration is being given to the hazard zones off the ends of these same runways. Simplified traffic control, economy of navigational aids, more effective use of radar, less airport acreage, room for expansion, protected runway extensions and smaller paved areas are favored by an oblong rather than a square airport. This is a principle that can be applied to new airport design, and in many cases, to present airports which are being hemmed in on some sides by residential areas. However, where high crosswinds are prevalent an additional but shorter runway, oriented at 90° to the dominant runway, will be needed for some years.

**Runway Length.**—Some manufacturers suggest that future transport airplanes (derived from current long-range high speed bombers) could be designed to have a marked gain in performance and efficiency if airports with runways several miles long with clear, flat approaches of several additional miles at each end were available. Such configurations for a few new airport projects might prove economically feasible, but for existing municipal airports such extensions are impractical. There are very few sites available within reasonable distance of population centers where airports with extremely long runways could be built. A well balanced system of civil air transportation, adequate to meet the needs of na-

tional defense, air commerce and the postal service calls for a wide-spread network of airports of reasonable size with the future to determine the requirements for a few "super" airports at strategic points for very long-range routes.

Most municipal authorities consulted by this Commission wish to retain their present airports. They urge that current standards of runway length be "frozen" and remain in effect for a substantial period of time in order to protect their already large investment. They argue that airplane designers should apply the results of research and invention to the improvement of the safety, performance and economy of their products within existing runway length limits.

Standard runway lengths for different categories of airports have been proposed. As many airports as possible should bring themselves up to these standards. It seems to this Commission that major air terminals should eventually provide principal runways, for the use of transcontinental or intercontinental airplanes, that are at least 8,400 feet long. A length of 10,000 feet should accommodate all types of practical transport airplanes now foreseen. Additional runway length would provide an additional safety factor but should not be required for normal operations.

A future change in the established standards for runway length should come only after compelling considerations. Its effect on the air transport industry would be world-wide. Few principal civil airports could undertake any substantial increase in runway length, and a new system of airports would have to be undertaken.

While runway length standards are desirable, it appears undesirable to specify a long term standard for strength of runway construction, or to attempt to limit airplane designers on airplane weight or wheel loads. Airports should be designed for the greatest wheel loads anticipated, and in the event that runways prove inadequate in strength for future airplanes, they can be reinforced or rebuilt.

**Nuisance Factors.**—Some excuse may be found for failure to have foreseen the rapid rate of aeronautical progress in designing airports in the past, but it is to be regretted that more consideration was not given to the comfort and welfare of people living on the ground in the vicinity of airports. To be sure, many settled near an airport after it was in operation, with little realization of the potential nuisance and hazard. The public cannot be expected, however, to anticipate technical developments and it should be informed and protected by the responsible authorities.

The public deserves a clear explanation of necessary airport procedures, accompanied by valid assurances that everything possible is being done to alleviate both noise and hazard. For example, in low visibility, incoming aircraft sometimes must be "stacked" near an airport under precise traffic control to prevent collisions. The public will understand and accept this necessity if it is assured that, within the limit of safe operation, the holding areas are selected so that the stacks will not be a source of nuisance. Also where operators are making a sincere effort to reduce engine run-up noise by controlled ground procedure and by the provision of proper acoustical treatment, and are avoiding take-offs over inhabited areas, reasonable people can be persuaded to tolerate some noise as a part of the cost of living in this age of technology. Operators, pilots and airport controllers must be indoctrinated to consider the people on the ground and make every effort consistent with safe flying practice to reduce hazard and noise.

Aircraft designers and manufacturers must also assume a share of the noise alleviation task. So far, they have been concerned mainly with noise levels inside the airplane. They should also strive to minimize noise outside the airplane. If the manufacturer is given a penalty for high noise or better yet a pre-

## Report on Sale

The complete report of the President's Airport Commission, entitled "The Airport and Its Neighbors," is on sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. Published herewith is the complete text of Part I. Parts II to VII include the technical discussions and other basic information from which the Commission's conclusions were drawn.

The complete report is on sale at 70 cents a copy.

mium for low noise level, it will stimulate competition in the development of quieter aircraft.

**Standardization and Training.**—It is believed that through standardization and training, accidents due to pilot error can be reduced. There is, at the moment, a regrettable lack of uniformity of design and arrangement of transport aircraft cockpits. Not only is there variation between different types of aircraft, but also variations in the same type, depending on the ideas of individual airlines. A useful step in improving the training of pilots in emergency procedures would be the standardization and simplification of equipment in cockpits. Simplified emergency procedures naturally would follow. The pilot's job would be easier and safety would be increased.

More training in emergency procedures should be required. Simulated emergency drills, in airplanes without passengers, should be conducted periodically. Such training flights should, of course, be conducted over uninhabited areas. A method of training flight crews without hazard is through the use of flight simulators. These are complicated devices duplicating the cockpit and flight deck of the airplane. The equipment and instrumentation are operated by an instructor to simulate various emergency conditions. The crew then deals with the situation as it would in flight. Necessary practice is thus provided without risk. Since flight simulators are expensive and one is required for each type of aircraft, it may be necessary to purchase and use them on a cooperative basis.

**Airport Planning.**—Alleviation of presently undesirable conditions is not enough. Policies and plans for the future must take into account trends in the air transport system of the nation. This requires continuing study.

It is to be expected that air transportation will continue to develop at a rapid rate. Municipalities should anticipate this expansion. They should plan for it and prepare to finance their share of it. Plan should include improvement of existing airports up to the point of balanced saturation and also the purchase of land required for additional airports some years before saturation is reached. If the latter is not done, the purchase cost will be much greater and the chance of obtaining and protecting a desirable site correspondingly reduced. Insofar as topography, present land use and economics will permit, the airport should be as close as possible to the center of the area from which air traffic originates. Comprehensive forward planning is essential to the establishment of efficient, economical, nuisance-free airports.

Such planning may require changes in the laws that govern the use of the navigable airspace, including the flight path to and from airports. Coordination and standardization in the development of airports used in interstate commerce are necessary. It is possible that the future will call for a system of airports for a metropolitan area with separate facilities for certain types of air traffic. This involves regional and city planning and particularly

(Continued on page 60)

# Regulations of The Administrator

Through June 1, 1952

Note: Regulations of the Administrator marked with an asterisk (\*) on the list given below may be obtained from the Superintendent of Documents, United States Government Printing Office, Washington 25, D. C., at the prices indicated. Remit check or money order, made payable to the Superintendent of Documents, directly to the Government Printing Office. Copies of amendments may be obtained free of charge from the Office of Aviation Information, CAA, Washington 25, D. C., or may be found in the Federal Register for the dates indicated in parentheses. Copies of the Federal Register are obtainable from the Superintendent of Documents.

## Organization

\*Part 400—Organization and Functions. (10c.)  
Amendments: 1 (July 11, 1951), 2 (August 14, 1951), 3 (Jan. 8, 1952), 4 (Jan. 17, 1952).

## Procedures

\*Part 405—General Procedures. (5c.)  
\*Part 406—Certification Procedures. (10c.)  
Amendments: 1 (May 3, 1952), 2 (May 28, 1952).  
\*Part 407—Recordation Procedures. (5c.)  
\*Part 408—Enforcement Procedures. (5c.)  
Amendments: 1 (Available from CAA.), 2 (October 23, 1951).  
\*Part 410—Delegation Option Procedures for Certification of Small Airplanes. (5c.)  
Part 412—Appeals Procedure for Air Navigation Facility and Civil Airport Construction Projects Under Revised CMP Regulation 6. (April 16, 1952).

## Rules

### Airmen

\*Part 450—Inter-American Aviation Training Grants. (5c.)

### Aircraft

\*Part 501—Aircraft Registration Certificates. (5c.)  
\*Part 502—Dealers' Aircraft Registration Certificates. (5c.)  
\*Part 503—Recordation of Aircraft Ownership. (5c.)  
\*Part 504—Recordation of Encumbrances Against Specifically Identified Aircraft Engines. (5c.)  
\*Part 505—Recordation of Encumbrances Against Aircraft Engines, Propellers, Appliances, or Spare Parts. (5c.)  
Part 506—Airworthiness Directives Recordation. (Available without charge from CAA.)  
Part 514—Technical Standard Orders — C Series — Aircraft Components. (October 12, 1951).

### Airports

\*Part 550—Federal Aid to Public Agencies for Development of Public Airports. (10c.)  
Amendments: 1-17 (Available from CAA.)  
\*Part 555—Acquisition of Government-owned Lands for Public Airport Purposes. (5c.)  
\*Part 560—Reimbursement for Damage to Public Airports by Federal Agencies. (10c.)  
Amendments: 1-2 (Available from CAA.)  
\*Part 570—Rules of Washington National Airport. (5c.)  
Amendments: 1-2 (Available from CAA.)  
\*Part 575—Federal Civil Airports on Canton and Wake Islands. (5c.)  
\*Part 580—Anchorage Airport and Fairbanks Airport. (5c.)

### Air Navigation

\*Part 600—Designation of Civil Airways (including amendments 1 through 18). (10c.)  
Amendments: 19-68 (Available from CAA.)  
\*Part 601—Designations of Control Areas, Control Zones and Reporting Points (including amendments 1 through 22). (15c.)  
Amendments: 23-73 (Available from CAA.)  
Part 608—Danger Areas (October 31, 1951).  
Amendments: 1 (Oct. 31, 1951), Correction (Nov. 8, 1951), 2 (Nov. 15, 1951), 3 (Nov. 16, 1951), 4 (Nov. 20, 1951), 5 (Nov. 29, 1951), 6 (Dec. 6, 1951), 7 (Dec. 12, 1951), 8 (Jan. 8, 1952), 9 (Jan. 8, 1952), 10 (Jan. 24, 1952), 11 (Jan. 23, 1952), 12 (Jan. 31, 1952), 13 (Feb. 8, 1952), 14 (Feb. 21, 1952), 15 (Mar. 4, 1952), 16 (Mar. 7, 1952), 17 (Mar. 13, 1952), 18 (Mar. 20, 1952), 19 (Apr. 4, 1952), 20 (Apr. 10, 1952), 21 (Apr. 17, 1952), 22 (Apr. 26, 1952), 23 (May 3, 1952), 24 (May 20, 1952).  
Part 609—Standard Instrument Approach Procedures. (July 27, 1951).  
Amendments: 1 (August 25, 1951), Correction (October 17, 1951), 2 (Nov. 6, 1951), 3 (Nov. 3, 1951), 4 (Nov. 21, 1951), Correction (Nov. 22, 1951), 5 (Dec. 11, 1951), 6 (Dec. 13, 1951), 7 (Dec. 18, 1951), 8 (Dec. 22, 1951), 9 (Jan. 17, 1952), 10 (Jan. 22, 1952), 11 (Jan. 22, 1952), 12 (Feb. 2, 1952), 13 (Feb. 16, 1952), 14 (Mar. 4, 1952), 15 (Mar. 13, 1952).  
Part 610—Minimum En Route Instrument Altitudes. (July 27, 1951), corrected September 21, 1951).  
Amendments: 1 (August 4, 1951), 2 (August 24, 1951), 3 (Nov. 2, 1951), 4 (Feb. 2 and 9, 1952), 5 (Mar. 21, 1952), 6 (Mar. 26, 1952), 7 and 8 (Apr. 5, 1952), 9 (Apr. 15, 1952), 10 (May 3, 1952), 11 and 12 (May 23, 1952).  
\*Part 612—Aeronautical Fixed Communications. (5c.)  
Correction (Apr. 4, 1952), Amendments 1 (Apr. 15, 1952).  
Amendment: 1 (May 24, 1952).  
Part 617—Airport Traffic Control Rules. (April 21, 1951).  
Amendment: (May 24, 1952).  
\*Part 620—Security Control of Air Traffic. (5c.)  
Amendments: 1-5 (Available from CAA.).  
Part 625—Notice of Construction or Alteration. (May 6, 1952).

### Miscellaneous

Part 635—Reproduction and Dissemination of Current Examination Materials. (Available without charge from CAA.)

## Scheduled Air Carrier Operations

(Source CAB Form 41)

### Domestic: March 1952

Operator	Revenue miles	Revenue passengers	Revenue passenger miles (000)	Passenger seat miles (000)	Revenue passenger load factor (percent)	Ton-miles flown		
						Express	Freight	United States mail
Trunk Lines								
American Airlines	6,850,253	372,078	210,058	304,288	69.03	803,731	3,673,863	1,389,468
Braniff Airways	1,014,642	65,435	23,001	37,805	60.84	69,233	158,448	130,744
Capital Airlines	1,974,783	138,125	40,816	80,369	50.79	193,126	316,143	168,144
Chicago & Southern Air Lines	769,975	41,707	16,075	25,841	62.21	71,437	106,450	65,106
Colonial Airlines	301,039	17,536	4,441	9,691	45.83	7,319	11,599	12,317
Continental Air Lines	630,911	26,997	10,458	20,381	51.31	17,463	65,330	44,071
Delta Air Lines	1,651,868	84,917	42,748	65,355	65.41	96,459	370,066	166,919
Eastern Air Lines	5,702,137	320,322	169,493	282,339	60.03	273,537	558,111	527,282
Inland Air Lines	244,126	9,449	3,760	5,824	64.56	6,885	12,371	19,135
Mid-Continent Airlines	680,381	32,997	10,052	18,945	53.06	19,478	47,757	34,498
National Airlines	1,582,007	67,994	48,419	73,659	65.73	60,872	405,772	131,448
Northeast Airlines	323,556	24,265	4,663	9,716	47.99	14,402	19,809	12,313
Northwest Airlines	1,132,355	56,883	37,932	61,986	61.19	130,361	302,245	198,715
Trans World Airlines	4,271,044	174,028	127,279	179,330	70.97	498,419	1,530,518	942,580
United Air Lines	5,435,232	245,704	157,591	235,092	67.03	730,976	2,353,478	1,745,752
Western Air Lines	798,655	54,184	19,960	30,614	65.20	38,044	75,174	97,346
Trunk Total	33,362,764	1,732,621	926,746	1,441,235	64.30	3,031,742	10,007,134	5,680,893
Local Service Lines								
All American Airways	247,508	10,790	1,520	5,198	29.24	8,398	0	4,624
Bonanza Air Lines	73,784	2,548	656	1,665	39.40	285	1,484	486
Central Airlines	119,474	3,331	446	2,509	17.78	845	1,586	2,465
Empire Air Lines	104,935	3,966	778	2,204	35.30	1,297	0	2,395
Frontier Airlines	375,480	8,825	2,364	7,885	29.98	5,446	37,329	8,084
Helicopter Air Service	27,228	0	0	0	—	0	0	2,233
Lake Central Airlines	98,937	2,234	354	1,980	17.88	4,215	0	1,191
Los Angeles Airways	21,729	0	0	0	0	0	0	3,779
Mid-Continent Airlines	65,879	2,842	550	1,532	35.90	1,726	3,308	1,202
Mid-West Airlines	53,624	147	21	214	9.81	0	0	619
Ozark Airlines	220,902	4,601	741	5,523	13.42	5,285	0	2,992
Piedmont Aviation	392,627	15,176	3,475	8,245	42.15	5,123	8,348	5,923
Pioneer Air Lines	344,340	14,447	3,678	8,264	44.51	3,302	15,867	10,769
Robinson Airlines	108,556	5,851	933	2,249	41.49	3,491	1,867	2,224
Southern Airways	276,800	9,617	1,649	5,813	28.37	7,291	0	7,104
Southwest Airways	197,249	12,493	2,268	4,142	54.76	3,942	14,056	6,409
Trans-Texas Airways	226,834	5,948	1,303	4,764	27.35	2,283	7,234	4,989
West Coast Airlines	116,321	6,982	1,038	2,443	42.49	986	5,162	787
Wiggins, E. W. Airways	31,349	145	15	125	12.00	119	0	69
Wisconsin-Central Airlines	156,084	8,531	1,263	3,278	38.53	8,659	0	6,161
Local Service Total	3,259,640	118,474	23,052	68,033	33.88	62,693	96,241	74,605
Territorial Lines								
Caribbean-Atlantic Airlines	64,333	11,125	863	1,726	50.00	0	2,667	910
Hawaiian Airlines	250,354	23,457	3,033	5,228	58.01	7,506	64,385	2,077
Trans-Pacific Airlines	113,893	9,303	1,164	3,189	36.50	1,857	3,155	1,688
Territorial Total	428,580	43,885	5,060	10,143	49.89	9,363	70,207	4,675
Grand Total	37,050,984	1,894,980	954,858	1,519,411	62.84	3,103,798	10,173,582	5,760,173

### International and Overseas: March 1952

Operator	Revenue miles	Revenue passengers	Revenue passenger miles (000)	Passenger seat miles (000)	Revenue passenger load factor (percent)	Ton-miles flown			
						Express	Freight	United States mail	Parcel post
American Airlines	241,911	10,275	8,112	12,246	66.24	407	158,041	14,225	0
Braniff Airways	354,029	2,897	6,541	15,090	43.35	0	60,146	35,154	0
Chicago & Southern Air Lines	141,234	2,490	2,958	6,517	45.39	0	61,681	4,202	455
Colonial Airlines	55,975	2,227	1,742	2,902	60.03	0	7,485	791	256
Eastern Air Lines	262,953	7,130	9,889	15,578	63.48	0	58,892	38,324	0
National Airlines	61,940	6,566	1,734	3,506	49.46	4,121	17,461	1,380	18
Northwest Airlines	517,187	5,524	9,138	16,654	54.87	10,523	605,400	121,030	0
Pan American World Airways	1,258,129	29,405	39,959	61,592	64.88	0	1,094,033	359,357	132,571
Atlantic Division	2,506,252	77,671	65,486	106,722	61.36	0	2,233,795	262,586	0
Latin American Division	242,423	3,486	3,794	10,827	35.04	0	390,664	38,233	0
Alaska Operations	853,798	7,443	25,955	41,582	62.42	0	617,481	342,490	19,505
Pacific Operations	507,169	11,140	12,639	18,498	68.33	226,457	0	30,740	9,293
Pan American-Grace Airways	1,077,275	11,659	29,714	43,836	67.78	0	604,018	318,019	53,227
Trans World Airways	265,392	3,718	9,212	19,984	65.88	0	56,831	56,098	0
United Air Lines	8,528	276	91	171	53.22	0	3,676	0	0
Uruba, Medellin & Central Airways									
<b>Total</b>	<b>8,354,135</b>	<b>181,937</b>	<b>226,964</b>	<b>369,705</b>	<b>61.39</b>	<b>241,513</b>	<b>5,999,604</b>	<b>1,622,599</b>	<b>215,325</b>

### Domestic: Passenger Miles Flown

(Total revenue and nonrevenue, in thousands)

	January	February	March	Total
Trunk	879,152	686,220	961,581	2,526,953
Local Service	21,646	21,421	24,830	67,897
Territorial	5,851	5,494	5,198	16,543
<b>Total</b>	<b>906,649</b>	<b>713,135</b>	<b>991,609</b>	<b>2,611,393</b>

# Scheduled Air Carrier Operations

(Continued on Page 60)

## International and Overseas: January-March, 1952, 1951

Operator	Revenue miles January-March		Revenue passengers January-March		Revenue passenger- miles (000) January-March		Passenger seat-miles (000) January-March		Revenue passenger load factor y (percent) January-March	
	1952	1951	1952	1951	1952	1951	1952	1951	1952	1951
American Airlines	706,421	715,584	30,182	30,395	24,264	23,714	35,896	37,497	67.60	63.24
Braniff Airways	1,061,012	784,631	8,831	6,774	18,100	13,768	45,088	33,203	40.14	41.47
Chicago & Southern Air Lines	412,199	409,519	7,738	7,230	9,008	7,874	19,046	18,641	47.30	42.24
Colonial Airlines	158,265	179,014	5,925	8,432	4,648	6,671	8,131	9,308	57.16	71.67
Eastern Air Lines	765,442	235,349	21,311	29,582	6,678	45,318	14,079	65,228	47.43	47.43
National Airlines	207,840	369,485	24,858	33,719	6,483	8,861	19,796	55,877	44.76	47.13
Northwest Airlines	1,501,125	1,487,733	15,493	13,766	25,394	24,756	50,140	52,522	50.65	47.13
Pan American World Airways:										
Atlantic Division	3,476,153	3,422,642	73,502	70,627	101,225	97,210	170,270	162,742	59.45	59.73
Latin American Division	7,312,060	6,870,025	222,453	207,473	187,298	162,824	309,960	250,120	60.43	62.60
Alaska Operations	668,811	535,440	9,188	7,950	10,192	8,445	29,581	23,632	34.45	35.74
Pacific Operations	2,485,904	2,166,834	19,837	16,678	70,206	56,965	120,854	106,031	58.09	53.72
Pan American-Grace Airways	1,487,513	1,431,502	31,810	29,480	34,822	32,260	54,021	52,109	64.46	61.91
Trans World Airlines	3,069,705	2,832,131	29,643	24,849	73,960	66,142	126,395	126,219	58.51	52.40
United Air Lines	773,459	751,756	11,299	8,167	27,989	20,116	40,710	38,048	68.75	52.87
Uruba, Medellin & Central Airways	25,604	26,896	902	692	297	227	513	539	57.89	42.12
Total	24,111,513	22,212,541	512,972	472,351	623,468	536,511	1,067,526	954,486	58.40	56.21
Index (1951=100)	108.55	100.00	108.60	100.00	116.21	100.00	111.84	100.00	103.90	100.00

Operator	Express and freight January-March		United States mail January-March		Parcel Post January-March	
	1952	1951	1952	1951	1952	1951
American Airlines	450,497	384,062	43,661	39,303	0	0
Braniff Airways	268,554	279,331	87,919	31,631	0	0
Chicago & Southern Air Lines	263,808	159,795	12,331	8,146	1,678	591
Colonial Airlines	13,599	17,010	3,764	3,712	857	397
Eastern Air Lines	196,023	36,379	110,954	33,781	0	0
National Airlines	61,594	71,363	3,832	3,064	19	0
Northwest Airlines	1,609,382	1,591,374	381,774	438,584	0	0
Pan American World Airways:						
Atlantic Division	2,994,333	2,552,284	1,104,938	915,898	311,405	240,890
Latin American Division	6,747,101	5,830,815	794,308	732,482	0	0
Alaska Operations	1,075,881	918,551	115,369	95,079	0	0
Pacific Operations	1,640,357	1,381,016	1,000,964	1,352,371	57,713	0
Pan American-Grace Airways	599,090	491,648	85,094	81,789	24,766	16,760
Trans World Airlines	1,773,568	1,493,714	1,005,762	841,645	164,251	130,771
United Air Lines	155,044	130,279	182,402	205,137	0	0
Uruba, Medellin & Central Airways	9,906	15,073	0	0	0	0
Total	17,858,737	15,853,294	4,933,072	4,782,622	560,189	389,409
Index (1951=100)	116.32	100.00	103.15	100.00	143.86	100.00

## Official Actions . . . . . Civil Aeronautics Board

### Regulations

#### Amdt. 42-12—Effective June 23, 1952

Amends section 42.21 (a) (10) to allow small aircraft without flap indicators to be used in air carrier service under Part 42, provided the Administrator has made a prior determination that wing flap position indicators are unnecessary.

#### Amdt. 3-8—Effective June 23, 1952

Amends fuel tank sump requirements of section 3.444 (c) to provide that if a separate sediment bowl is provided in lieu of a tank sump, the fuel tank outlet shall be so located that, when the airplane is in the normal ground attitude, water will drain from all portions of the tank to the sediment bowl. The present wording of this section requires that the outlet shall be located so that water will drain from all portions of the tank to the outlet. The term "outlet" in this instance does not give a clear indication of the intent of the rule.

#### Amdt. 6-2—Effective June 23, 1952

Amends rotor drive mechanism requirements and induction system de-icing and anti-icing requirements of Part 6.

A literal reading of section 6.410 of Part 6 of the Civil Air Regulations would require the incorporation of a unit which will disengage both the rotor drive and the engine from the main and auxiliary rotors in the event of power failure. This requirement is considered to be unduly restrictive because of the difficulties of compliance and the resulting unnecessarily complicated design. Accordingly, this amendment permits the disengaging unit to be located between the engine and the rotor drive.

At the present time section 6.462 (c) of Part 6 of the Civil Air Regulations requires that rotorcraft equipped with sea level engines have a carburetor preheater capable of providing a heat rise of 70 degrees F. Since a rise of that magnitude is not considered to be necessary with the type of carburetor described in the paragraph, this amendment provides a more objective measure by requiring a sheltered source of air which is warmed to the temperature to which the cylinder cooling air is warmed.

### Safety Orders

S-480 grants petition of Tennessee Gas Transmission Company for a waiver of section 9.2 (c) and (d) of the Civil Air Regulations so as to permit certification in the limited category of its Martin B-26C aircraft, subject to stated provisions. (Mar. 28.)

S-489 modifies examiner's order in matter of a complaint of the Administrator of Civil Aeronautics against James E. Joseph, and orders that respondent's airman certificate be revoked effective April 10, 1952, and that no type of airman certificate be issued to him before Oct. 10, 1952. (Mar. 31.)

S-490 denies petition of Theodore Emil Johnson for modification and affirms the examiner's order in the matter of a complaint of the Administrator of Civil Aeronautics. (Apr. 15.)

S-491 modifies examiner's order in the matter of a complaint of the Administrator of Civil Aeronautics and orders that the airman certificate of Gerard J. Farrell be suspended 6 months from May 3, 1952, or 6 months from a subsequent date of surrender of his airman certificate (Apr. 23.)

S-492 modifies examiner's order in the matter of a complaint of the Administrator of Civil Aeronautics and orders that the airman certificate of Gerard J. DiSilvestro be suspended for 6 months from May 3, 1952, or 6 months from a subsequent date of surrender of his airman certificate (Apr. 23.)

S-493 dismisses appeal of New England Air Express in the matter of a complaint of the Administrator of Civil Aeronautics and revokes, effective May 4, 1952, any irregular air carrier operating certificate held by it (Apr. 29.)

S-494 grants request of Air Tours, Inc., for waiver of sec. 42.55 (a) of the Civil Air Regulations until June 30, 1953, with stated provision; supersedes S-411 (May 1.)

S-495 affirms examiner's order in the matter of a complaint of the Administrator of Civil Aeronautics against Alfred Bates, and revokes any airman pilot certificate held by him, effective May 16, 1952, and orders that no type of airman pilot certificate be issued him before May 16, 1954 (May 6.)

### Airline Orders

E-6123 orders amended certificate, effective Feb. 14, 1952, be issued to Mid-Continent Airlines for route No. 26. (Feb. 14.)

E-6124 orders that certain testimony taken in Executive session at the hearing on Nov. 5, 1952, in the Alaska Route Modification case, be withheld from public disclosure until further order of the Board. (Feb. 15.)

E-6125 grants the city of Camden, Ark., leave to intervene

in the matter of the application of Central Airlines for renewal of its temporary certificate for route No. 81. (Feb. 15.)

E-6126 grants certain petitioners in Arizona, New Mexico, and Texas, and Continental Air Lines, Western Air Lines, the Air Line Pilots Association, Int'l., and the Postmaster General leave to intervene in the Frontier Route 93 Renewal case. (Feb. 15.)

E-6127 approves, subject to stated terms, the application of Southern Airways for a waiver of a condition in its loan agreement with the Reconstruction Finance Corporation with respect to mail pay. (Feb. 15.)

E-6128 approves agreements involving United Air Lines and Braniff Airways, various other air carriers, and other carriers, relating to intercompany arrangements. (Feb. 18.)

E-6129 grants the Pioneer Air Lines, the Air Line Pilots Association, International, and a number of cities and chambers of commerce in Texas leave to intervene in the matter of the application of Trans-Texas Airways, Inc., for renewal of segments 2 and 6 of its route No. 82. (Feb. 18.)

E-6130 grants the Village of Johnson City, and the City of Binghamton, N.Y., leave to intervene in the matter of the application of Robinson Airlines Corporation for renewal of its certificate for route No. 94. (Feb. 18.)

E-6131 grants National Airlines leave to intervene in the matter of the application of City of Melbourne, Fla., for authority to be included as an intermediate stop on the route of a certificated airline. (Feb. 18.)

E-6132 in the matter of the complaint of Eastern Air Lines, extends from Feb. 28, 1952, to May 28, 1952, the period of suspension of a certain rule, insofar as applicable to institute air transportation by certain air carriers with respect to proposed increase in free baggage allowance for Military personnel. (Feb. 18.)

E-6133 grants the State of Oregon, acting by and through the Oregon State Board of Aeronautics, leave to intervene in the Empire Certificate Renewal case. (Feb. 21.)

E-6134 opinion and order fix and determine final mail rates to be paid Pan American World Airways on and after Jan. 1, 1946, over its routes between the United States and Alaska and between points in Alaska. (Feb. 19.)

E-6135 grants the City and Chamber of Commerce of Pendle-

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# Airport Commission Reports to President

(Continued from page 57)

questions of interconnecting highway and air services and the integration of the air and ground traffic. It also implies successful development of short-haul aircraft, possibly of the helicopter type.

The inadequacy of our present road network, particularly in the vicinity of major cities and between city and airport, is one of the greatest deterrents to the further development of transport aviation.

**Navigable Airspace.**—As a result of fear engendered by low flying aircraft, several communities have recently passed local ordinances prohibiting flight over them at altitudes less than 1,000 feet. Along airways, such regulations would present no problem. They could, however, severely hamper approaches to certain airports. It is anticipated that the courts will shortly be called upon to decide this question.

This Commission believes that the Federal Government, through the Civil Aeronautics Board and the CAA, now has authority from Congress to regulate and determine approaches for airports used in interstate commerce. Accordingly, the CAA should determine what is the best approach pattern for a particular airport, and should then declare that the "safe altitude" in that area is in conformity with the airport approach pattern. Pursuant to the Civil Aeronautics Act of 1938, this should mean that there is a "public right of transit" in accordance with that airport approach pattern. If the pattern appears to depreciate property values of underlying landowners, the Federal Government might, if funds are made available by the Congress, exercise the power of eminent domain to acquire title to the land. If an easement through the airspace is involved, it appears that additional legislation would be required.

**Airport Certification.**—It is clear that commercial airports are instrumentalities of interstate and foreign commerce. As such, they have a definite public character. Their continued efficient operation vitally affects interstate commerce, national defense, and the postal service. They are, however, at the present time subject to little Federal regulation. The Commission believes that such regulation should be kept to a minimum, but also believes that more authority over such airports is required than is now provided by Federal statutes.

The Civil Aeronautics Act authorizes the Administrator to inspect, classify and rate any air navigation facility (which includes airports) as to its suitability, and to issue certificates for any air navigation facility. But the Act does not require the issuance of a federal certificate to airports, nor does it make unlawful the operation of an airport without a certificate.

The Civil Aeronautics Act should be amended to require that certificates shall be issued for the operation of airports used in interstate commerce. Such certificates should define minimum standards for safe operation and proper maintenance and should be revoked if such standards are not met. The abandonment of such certificate or the closing of an airport for other reasons, however, should not be permitted except after notice and hearing and due finding that the proposed action is in the public interest.

## Recommendations

The Commission feels that definite arrangements should be made and specific governmental agencies designated to develop and to implement the following recommendations:

1. **Support required airport development.** New airports will be needed and present airports must be improved. State, county and municipal governments

# Scheduled Air Carrier Operations

(Continued on Page 61)

## Domestic: January-March 1952, 1951

Operator	Revenue miles January-March		Revenue passengers January-March		Revenue passenger- miles (000) January-March		Passenger seat- miles (000) January-March	
	1952	1951	1952	1951	1952	1951	1952	1951
<b>Trunk Lines</b>								
American Airlines.....	19,794,656	15,365,826	1,032,505	981,283	584,793	491,918	872,496	657,496
Braniff Airways.....	3,039,416	2,797,272	193,495	176,202	67,366	59,863	112,859	98,240
Capital Airlines.....	6,005,610	5,272,215	392,798	358,436	117,752	110,983	243,518	200,173
Chicago & Southern Air Lines.....	2,252,577	1,852,960	115,286	92,703	44,595	34,664	74,901	53,928
Colonial Airlines.....	877,863	832,995	50,809	50,297	12,895	12,997	28,423	24,409
Continental Air Lines.....	1,863,502	1,488,298	77,899	55,648	29,840	20,296	60,430	42,809
Delta Air Lines.....	4,724,635	4,166,586	237,842	202,550	118,768	102,786	184,541	154,703
Eastern Air Lines.....	15,975,766	14,920,380	880,307	860,112	456,671	442,941	741,712	668,649
Inland Air Lines.....	722,814	769,372	26,830	21,604	10,312	8,479	17,338	17,031
Mid-Continent Airlines.....	1,999,609	1,867,356	94,417	82,967	28,843	25,161	54,969	46,162
National Airlines.....	4,584,561	4,077,704	195,114	171,788	138,252	128,287	206,788	175,330
Northeast Airlines.....	953,257	941,976	70,077	86,465	13,455	16,166	28,481	29,087
Northwest Airlines.....	3,126,587	2,884,379	152,458	112,973	102,400	73,323	174,735	150,708
Trans World Airlines.....	12,550,702	11,437,466	486,381	416,647	360,927	296,766	521,798	450,970
United Air Lines.....	15,679,546	12,907,321	675,676	599,284	437,378	352,796	665,518	502,645
Western Air Lines.....	2,328,607	2,019,135	146,587	137,568	53,593	49,424	88,581	80,142
<b>Trunk Total.....</b>	<b>96,479,708</b>	<b>83,541,243</b>	<b>4,827,981</b>	<b>4,406,527</b>	<b>2,578,340</b>	<b>2,221,850</b>	<b>4,077,028</b>	<b>3,352,482</b>
<b>Index (1951=100).....</b>	<b>115.49</b>	<b>100.00</b>	<b>109.56</b>	<b>100.00</b>	<b>116.04</b>	<b>100.00</b>	<b>121.61</b>	<b>100.00</b>
<b>Local Service Lines</b>								
All American Airways.....	714,211	691,675	31,152	34,673	4,306	4,845	14,999	14,525
Bonanza Air Lines.....	220,053	221,280	7,384	6,793	1,886	1,739	4,802	4,537
Central Airlines.....	350,804	344,049	10,294	3,994	1,283	716	7,366	5,351
Empire Air Lines.....	302,540	304,422	10,234	9,279	2,016	1,847	6,354	6,393
Frontier Airlines.....	1,104,967	1,066,592	24,924	20,321	6,621	5,127	23,205	21,332
Helicopter Air Service.....	80,092	74,843	0	0	0	0	0	0
Lake Central Airlines.....	279,554	248,669	5,972	4,578	937	778	5,638	5,482
Los Angeles Airways.....	61,583	87,293	0	0	0	0	0	0
Mid-Continent Airlines.....	203,356	217,513	8,578	8,134	1,669	1,562	4,638	4,568
Mid-West Airlines.....	166,090	176,367	503	565	78	75	664	707
Ozark Airlines.....	618,246	579,513	12,158	5,484	1,966	775	15,456	5,007
Piedmont Aviation.....	1,111,639	869,114	41,851	33,430	9,656	7,676	23,345	18,252
Pioneer Air Lines.....	972,958	892,334	39,172	34,405	10,088	9,108	23,351	21,416
Robinson Airlines.....	382,909	309,144	17,232	17,929	2,731	2,765	6,939	6,104
Southern Airlines.....	807,169	624,432	27,079	17,283	4,626	3,140	16,951	13,070
Southwest Airways.....	570,311	593,375	28,626	32,457	5,348	6,125	11,976	12,461
Trans-Texas Airways.....	678,691	662,910	16,666	16,001	3,724	3,909	14,253	13,921
West Coast Airlines.....	343,414	264,408	17,061	11,519	2,477	1,639	7,212	5,552
Wiggins, E. W. Airways.....	95,964	154,581	460	830	34	77	319	617
Wisconsin-Central Airlines.....	454,552	422,282	22,872	11,367	3,396	1,720	9,545	4,162
<b>Local Service Total.....</b>	<b>9,469,103</b>	<b>8,504,796</b>	<b>322,210</b>	<b>269,402</b>	<b>62,847</b>	<b>53,623</b>	<b>197,073</b>	<b>163,457</b>
<b>Index (1951=100).....</b>	<b>111.34</b>	<b>100.00</b>	<b>119.76</b>	<b>100.00</b>	<b>117.20</b>	<b>100.00</b>	<b>120.57</b>	<b>100.00</b>
<b>Territorial Lines</b>								
Caribbean-Atlantic Airlines.....	189,708	162,951	32,470	27,470	2,546	2,162	5,056	4,418
Hawaiian Airlines.....	792,745	721,576	76,241	74,539	9,892	9,625	16,434	15,548
Trans-Pacific Airlines.....	329,134	212,654	29,785	19,913	3,711	2,371	9,215	5,959
<b>Territorial Total.....</b>	<b>1,311,587</b>	<b>1,097,181</b>	<b>138,496</b>	<b>121,922</b>	<b>16,149</b>	<b>14,158</b>	<b>30,705</b>	<b>25,925</b>
<b>Index (1951=100).....</b>	<b>119.54</b>	<b>100.00</b>	<b>113.59</b>	<b>100.00</b>	<b>114.06</b>	<b>100.00</b>	<b>118.44</b>	<b>100.00</b>
<b>Grand Total.....</b>	<b>107,260,398</b>	<b>93,143,220</b>	<b>5,288,687</b>	<b>4,797,491</b>	<b>2,657,336</b>	<b>2,289,631</b>	<b>4,304,806</b>	<b>3,541,864</b>
<b>Index (1951=100).....</b>	<b>115.16</b>	<b>100.00</b>	<b>110.24</b>	<b>100.00</b>	<b>116.06</b>	<b>100.00</b>	<b>121.54</b>	<b>100.00</b>

should be prepared to assume their proper share of this expense.

2. **Expand Federal-aid airport program.** Authorization of matching funds for Federal aid to airports should be implemented by adequate appropriations. Highest priority in the application of Federal aid should be given to runways and their protective extensions incorporated into the airport, to bring major municipal airports up to standards recommended in this report.

3. **Integrate municipal and airport planning.** Airports should be made a part of community master plans completely integrated with transportation requirements for passenger, express, freight and postal services. Particular attention should be paid to limited access highways and other transportation facilities to reduce time to the airport from sources of air transport business.

4. **Incorporate cleared runway extension areas into airports.** The dominant runways of new airport projects should be protected by cleared extensions at each end at least one-half mile in length and 1,000 feet wide. This area should be completely free from housing or any other form of obstruction. Such ex-

tensions should be considered an integral part of the airport.

5. **Establish effective zoning laws.** A fan-shaped zone, beyond the half-mile cleared extension described in Recommendation 4, at least two miles long and 6,000 feet wide at its outer limits should be established at new airports by zoning law, air easement or land purchase at each end of dominant runways. In this area, the height of buildings and also the use of land should be controlled to eliminate the erection of places of public assembly, churches, hospitals, schools, etc., and to restrict residences to the more distant locations within the zone.

6. **Improve existing airports.** Existing airports must continue to serve their communities. However, cities should go as far as is practical toward developing the cleared areas and zoned runway approaches recommended for new airports. No further building should be permitted on runway extensions and, wherever possible, objectionable structures should be removed. Operating procedures should be modified in line with Commission recommendations for mini-

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# Scheduled Air Carrier Operations

(Continued from Page 60)

## Domestic: January-March 1952, 1951

Operator	Revenue passenger load factor (percent)		Ton-miles flown					
	January-March		Express January-March		Freight January-March		United States mail January-March	
	1952	1951	1952	1951	1952	1951	1952	1951
<b>Trunk Lines</b>								
American Airlines	67.03	74.82	2,356,900	2,493,409	10,074,051	9,028,417	4,235,561	3,376,492
Branniff Airways	59.69	60.94	223,039	318,903	449,120	472,243	409,266	390,402
Capital Airlines	48.35	55.44	572,997	676,507	920,996	1,268,075	518,328	453,786
Chicago & Southern Air Lines	59.54	64.28	196,584	199,098	296,019	200,890	180,495	160,168
Continental Airlines	45.37	53.25	22,135	25,198	38,437	27,338	33,975	26,840
Continental Air Lines	49.38	47.41	45,290	35,825	173,212	150,413	137,826	128,956
Delta Air Lines	64.36	66.44	298,878	338,949	1,017,252	1,023,794	501,507	489,146
Eastern Air Lines	61.57	66.24	873,920	1,665,845	1,638,011	1,366,862	1,511,455	1,469,073
Inland Air Lines	62.36	49.79	18,751	21,721	38,858	34,600	57,529	61,958
Mid-Continent Airlines	52.53	54.51	55,721	65,508	131,101	132,310	101,885	98,087
National Airlines	66.86	70.32	189,611	129,812	1,283,908	1,323,763	384,639	265,650
Northeast Airlines	47.24	55.58	45,697	59,757	45,914	55,588	37,781	34,723
Northwest Airlines	58.60	48.65	392,790	530,830	788,178	1,060,967	607,312	522,848
Trans World Airlines	69.17	65.81	1,512,493	2,335,627	4,001,141	3,981,131	2,963,781	2,772,080
United Air Lines	65.72	70.19	2,226,579	3,106,200	6,484,500	6,546,454	5,259,343	3,895,576
Western Air Lines	60.50	61.67	103,906	110,007	171,779	179,349	298,497	274,923
Trunk Total	63.24	66.27	9,136,041	12,113,262	27,547,827	26,851,694	17,239,180	14,291,658
Index (1951=100)	95.43	100.00	75.42	100.00	102.59	100.00	120.62	100.00
<b>Local Service Lines</b>								
All American Airways	28.71	33.36	30,026	39,737	0	0	14,439	11,562
Bonanza Air Lines	39.28	38.33	590	564	3,936	2,602	1,578	1,222
Central Airlines	17.42	13.38	2,411	0	5,117	0	6,286	4,691
Empire Air Lines	31.73	28.89	3,751	3,890	0	0	7,581	5,827
Frontier Airlines	28.53	24.03	16,083	15,060	90,673	52,418	26,744	25,328
Helicopter Air Service	16.62	14.19	12,250	34,880	0	0	6,731	5,539
Lake Central Airlines	35.99	34.19	6,823	11,829	8,845	9,965	3,943	4,227
Mid-Continent Airlines	12.05	10.61	0	0	0	0	1,995	1,740
Mid-West Airlines	12.72	15.48	12,419	15,265	0	0	7,776	3,119
Ozark Airlines	41.36	42.06	15,634	25,761	27,116	30,813	17,082	14,074
Piedmont Aviation	43.20	42.53	10,118	12,306	43,862	33,395	29,647	24,928
Pioneer Air Lines	39.36	45.30	11,021	15,284	7,261	9,975	6,993	6,275
Robinson Airlines	27.29	24.02	21,493	16,716	0	0	21,315	20,936
Southern Airways	44.66	49.15	10,390	11,081	37,300	44,962	18,530	12,680
Southwest Airlines	26.13	28.98	6,978	7,385	18,976	15,496	14,606	9,687
Trans-Texas Airways	34.35	29.52	2,610	2,230	14,658	10,855	2,429	1,588
West Coast Airlines	11.61	12.48	318	0	0	0	206	306
Wiggins, E. W. Airways	35.58	41.33	26,898	14,566	0	0	18,664	10,538
Wisconsin-Central Airlines	31.89	32.81	189,813	226,554	257,744	210,478	221,410	180,691
Local Service Total	97.20	100.00	83.78	100.00	122.46	100.00	122.54	100.00
<b>Territorial Lines</b>								
Caribbean-Atlantic Airlines	50.36	48.94	0	0	8,175	6,797	2,689	2,310
Hawaiian Airlines	60.19	61.91	22,335	25,558	202,434	163,321	6,229	10,546
Trans-Pacific Airlines	40.27	39.79	3,307	3,327	8,628	4,966	4,826	0
Territorial Total	52.59	54.61	25,642	25,885	219,237	175,084	13,744	12,856
Index (1951=100)	96.30	100.00	99.66	100.00	125.22	100.00	106.91	100.00
Grand Total	61.73	64.64	9,351,496	12,365,701	28,024,808	27,237,256	17,474,334	14,485,205
Index (1951=100)	95.50	100.00	75.62	100.00	102.89	100.00	120.64	100.00

## Official Actions . . . CAB

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ton, Ore., leave to intervene in the Empire Certificate Renewal case. (Feb. 19.)

E-6136 authorizes Eastern Air Lines to inaugurate service immediately, subject to any necessary amendment of its operating certificate, to New York, N.Y., through use of the New York International Airport, in addition to LaGuardia Field. (Feb. 21.)

E-6137 institutes investigation of and suspends through May 21, 1952, certain family excursion fares proposed by Alaska Airlines, Inc., between points in the United States and Alaska. (Feb. 2.)

E-6138 in the Indiana-Ohio Local Service case, responds for further hearing, limited to stated issues of fitness, willingness and ability, the application of Lake Central Airlines in Dockets Nos. 4701, 4637, and 4638, and the proceeding in Docket No. 4034 in the matter of the renewal and amendment of Lake Central's authority to serve route No. 88 and additional communities in Indiana and Ohio. (Feb. 21.)

E-6139 amends orders Nos. E-3920, E-3203, E-3546, E-4592, E-4346, E-5695, E-4629, E-5592, E-2935 as amended by E-3202, E-3339, E-3546, and E-3203 in Dockets Nos. 3594, 3620, 3655, E-3339, E-3546, and E-3203 in Dockets Nos. 3594, 3620, 3655, 4074, 4138, 4145, 4164, 4246 4345, 4615, 4654, 4743, and 5001 with respect to reporting requirements concerning authorized flag-stop operations of 12 local service air carriers. (Feb. 21.)

E-6140 institutes investigation to make certain determinations with respect to rates and provisions proposed by Northwest Airlines from Anchorage, Alaska, to Seattle, Wash., and if found to be unlawful to determine and prescribe the lawful rates and other provisions; consolidates into the proceeding in Docket No. 5067, et al. (Feb. 25.)

E-6141 approves agreements, subject to stated conditions, be-

tween Delta Air Lines and Trans World Airlines, Capital Airlines and National Airlines, American Airlines and Delta Airlines, American Airlines, Delta Air Lines and National Airlines, and American Airlines and Continental Air Lines involving the interchange of equipment. (Feb. 25.)

E-6142 grants Trans World Airlines exemption, with stated provision, until June 1, 1952, from the provision of section 401 (a) of the Act and its certificate so as to permit it to serve Albuquerque and Santa Fe on the same flight. (Feb. 25.)

E-6143 in the North Central Route Investigation case defers that portion of a petition of Mid-West Airlines for reconsideration of Board order No. E-5952 relating to a Des Moines-Chicago route until decision in the Mid-West Certificate Renewal case; otherwise denies. (Feb. 26.)

E-6144 amends orders Nos. E-4246, E-4247, E-4308, E-4476, E-4825, E-4848, E-4918, E-4988, E-4951, E-5137, E-5161, E-5202, E-5203, E-5527, E-5626, in Docket Nos. 3848, 3780, 3784, 3833, 3839, 3902, 3916, 3919, 3921, 3922, 3929, 3934, 3936, 3938, and 3951 so as to equalize exemption authority granted to Johnson Flying Service and 14 other Irregular Transport Carriers permitting them to engage in irregular interstate and overseas air transportation of persons and property and foreign air transportation of property subject to all stated terms, conditions and limitations, until final disposition of the Investigation of Air Service by Large Irregular Carriers and Irregular Transport Carriers case. (Feb. 26.)

E-6145 approves application of Cordova Air Service for a loan from Reconstruction Finance Corporation; issues certificate under section 4 (a) (1) of the RFC Act, as amended. (Feb. 27.)

E-6146 institutes investigation of and suspends through May 31, 1952, certain coach fares proposed by Capital Airlines, Eastern Air Lines, National Airlines, Northwest Airlines, United Air Lines, and Western Air Lines; orders proceeding set for hearing before an examiner of the Board at a time and place to be

(Continued on page 62)

## Civil Aviation Highlights

	1952	1951
<b>Airports and airfields recorded with CAA May 1</b>		
By type:		
Commercial	1,975	2,219
Municipal	2,312	2,278
CAA Intermediate	56	70
Military	347	328
All others	1,484	1,437
a. Private use	1,338	1,282
b. Miscellaneous government	146	155
<b>Civil airports and airfields by class:</b>		
Total	5,827	6,004
Class I and under	3,781	3,947
Class II	960	959
Class III	497	507
Class IV	373	372
Class V	128	136
Class VI and over	88	85
Total U. S. civil aircraft May 1	87,944	91,185
Scheduled air carrier aircraft May 1	(1)	1,216
Civil aircraft production March		
Total	248	273
1- and 2-place models	172	62
3-, 4-, and 5-place models	76	290
Over 5-place models		11
<b>Certificates approved March</b>		
Student pilots	(2)	2,896
Private pilots	(2)	1,454
Commercial pilots	(2)	406
Airline transport pilots	(2)	101
Mechanics (original certificates)	(2)	337
Ground instructors (original certificates)	(2)	55
Flight instructor ratings	(2)	119
Instrument ratings	(2)	166
Control tower operators	(2)	55
Traffic control activity March		
Aircraft operations, CAA airport towers	1,307,599	1,306,556
Fix postings, CAA airport centers	1,234,454	1,164,249
Instrument approaches, CAA approach control towers	31,430	31,451
<b>AIRPORT OPERATIONS</b>		
Washington National April		
Scheduled air carrier:		
Passengers departing	108,137	103,864
Passengers arriving	106,332	102,639
Aircraft arrivals and departures	12,641	11,449
Other aircraft arrivals and departures	3,001	4,089
San Francisco Municipal March		
Scheduled air carrier:		
Passengers departing	(3)	(3)
Passengers arriving	(3)	(3)
Aircraft arrivals and departures	8,390	8,402
Other aircraft arrivals and departures	4,177	4,461
Oakland Municipal March		
Scheduled air carrier:		
Passengers departing	11,362	9,446
Passengers arriving	11,892	9,263
Aircraft arrivals and departures	6,139	4,963
Other aircraft arrivals and departures	9,429	12,802
Miami International March		
Scheduled air carrier:		
Passengers departing	99,623	102,697
Passengers arriving	90,677	100,164
Aircraft arrivals and departures	10,155	10,718
Other aircraft arrivals and departures	14,607	12,358
Los Angeles International March		
Scheduled air carrier:		
Passengers departing	86,997	70,776
Passengers arriving	83,507	70,440
Aircraft arrivals and departures	10,181	9,153
Other aircraft arrivals and departures	8,671	7,365

<sup>1</sup> Airport type definitions: Commercial—Public use and public services, private control. Municipal—Public use and public services, public control. CAA Intermediate—No public services, CAA control. Military—No public services, military control. Other—(a) No public services, private control; (b) No public services, Federal Government control (Forest Service, etc.).

<sup>2</sup> The following is a breakdown of paved airports and unpaved airfields by class of facility:

Class of facility	Airports		Airfields		Total	
	1952	1951	1952	1951	1952	1951
I and under	123	111	3,658	3,836	3,781	3,947
II	188	176	772	783	960	959
III	335	338	162	169	497	507
IV	332	334	41	38	373	372
V	122	129	6	7	128	136
VI and over	84	81	4	2	88	85
Total	1,184	1,169	4,643	4,835	5,827	6,004

<sup>3</sup> Not available.

## Report of Commission

(Continued from page 60)

mizing hazard and nuisance to persons living in the vicinity of such airports.

7. *Clarify laws and regulations governing use of airspace.* Authority of the Federal, State or municipal governments with respect to the regulation of the use of airspace should be clarified to avoid conflicting regulation and laws.

8. *Define navigable airspace in approach zones.* The limits of the navigable airspace for glide path or take-off patterns at airports should be defined.

9. *Extend Civil Aeronautics Act to certificate airports.* The Civil Aeronautics Act should be amended to require certification of airports necessary for interstate commerce and to specify the terms and conditions under which airports so certified shall be operated. Certificates should be revoked if minimum standards for safety are not maintained. Closing or abandonment of an airport should be ordered or allowed only if clearly in the public interest.

10. *Maintain positive air traffic control.* Certain air traffic control zones in areas of high air traffic density should be made the subject of special regulations to insure that all aircraft within the zone are under positive air traffic control at all times regardless of weather.

11. *Raise circling and maneuvering minimums.* Present straight-in instrument approach minimums are considered satisfactory but the minimum ceilings and visibilities under which aircraft are permitted to circle or maneuver under the overcast in congested terminal areas should be raised.

12. *Accelerate installation of aids to air navigation.* Research and development programs and installation projects designed to improve aids to navigation and traffic control in the vicinity of airports, especially in congested areas, should be accelerated. Installation and adequate manning of radar traffic control systems should be given high priority.

13. *Revise present cross-wind component limits.* Existing cross-wind component limitations should be reviewed to establish more liberal cross-wind landing and take-off specifications for each transport-type aircraft.

14. *Develop and use cross-wind equipment.* Although modern transport aircraft can operate successfully in any but very strong cross-winds, the further development and use of special cross-wind landing gears should be accelerated.

15. *Extend use of single runway system.* New airports should adopt a single or parallel runway design. This should be adequate except under strong wind conditions, in which case a shorter runway at 90° to the main one may be required. Present airports should plan to develop the dominant runway at the expense of those less used. Airport expansion should be achieved through additional parallel runways.

16. *Meet standard requirements for runway length.* For each category of airport a standard runway length has been established consistent with its future planned use. Airports should bring their runways up to standard. For intercontinental or transcontinental airports, the length of the dominant runways should be 8,400 feet with possibility of expansion to 10,000 feet if later required and with clear approaches as per Recommendations 4 and 5.

17. *Accelerate ground noise reduction programs.* Engine run-up schedules and run-up locations should be adjusted to minimize noise near airports. Adequate acoustical treatment in run-up areas and at test stands should be provided.

18. *Instruct flight personnel concerning nuisance factors.* A tight discipline with respect to airport approach and departure procedures to minimize noise

## Certificated Cargo Carriers Scheduled and Nonscheduled Operations, 1951

	Airnews, Inc.			The Flying Tiger Line, Inc.		
	Jan.-June	July-Dec.	Total	Jan.-June	July-Dec.	Total
Revenue miles	166,769	85,230	251,999	2,764,766	2,779,622	5,544,388
Freight ton-miles	199,066	91,449	290,515	14,701,361	14,471,677	29,173,038
Available ton-miles	582,120	298,305	880,425	18,050,084	18,118,821	36,168,905
Load factor percent	34.20	30.66	33.00	81.45	79.87	80.66

	Riddle Aviation Co. <sup>1</sup>			Slick Airways, Inc.		
	Jan.-June	July-Dec.	Total	Jan.-June	July-Dec.	Total
Revenue miles	473,380	1,051,218	1,524,598	6,169,497	6,398,662	12,568,159
Freight ton-miles	1,861,798	4,389,663	6,251,461	32,487,800	35,402,812	67,890,612
Available ton-miles	2,483,079	5,976,522	8,459,601	37,890,901	42,760,227	80,651,128
Load factor percent	74.98	73.45	73.90	85.74	82.79	84.18

	U. S. Airlines, Inc.			Total		
	Jan.-June	July-Dec.	Total	Jan.-June	July-Dec.	Total
Revenue miles	637,833	-	637,833	10,212,245	10,314,732	20,526,977
Freight ton-miles	2,283,267	-	2,283,267	51,533,292	54,355,601	105,888,893
Available ton-miles	3,469,299	-	3,469,299	62,475,483	67,163,875	129,639,358
Load factor percent	65.81	-	65.81	82.49	80.94	81.69

<sup>1</sup> Scheduled service inaugurated 3/25/51.

nuisance to people on the ground (within the limits of safe operating procedures) should be maintained at all times.

19. *Arrange flight patterns to reduce ground noise.* Airways and flight patterns near airports should be arranged to avoid unnecessary flight over thickly settled areas to minimize noise, but only within the limits of safe flight practice.

20. *Minimize training flights at congested airports.* Flight crew training should be conducted, as far as practicable, away from thickly settled areas and with a minimum number of flights into and out of busy airports.

21. *Minimize test flights near metropolitan areas.* Production flyaway from aircraft factories under proper conditions is acceptable but all flights of experimental aircraft and test flying of production models near built-up areas should be reduced as far as possible.

22. *Avoid military training over congested areas.* Although the basing of reserve air units at airports near cities has been considered generally desirable, and the location of certain combat units there is sometimes necessary, training maneuvers, particularly with armed military aircraft, should be conducted only over open spaces. Rapid shuttle service to an outlying military training field offers minimum interference with civil air operations and maximum safety and freedom from nuisance to people on the ground.

23. *Separate military and civil flying at congested airports.* Military aircraft should not be based on congested civil airports except when it is not economically or otherwise feasible to provide separate facilities for them nor should commercial aircraft operate regularly from busy military airports.

24. *Provide more flight crew training.* Every flight crew should be required to have frequent drills in instrument and emergency procedures. This can be accomplished in part in flight simulators. These flight simulators should be located at convenient points and should be available to all operators on a fair basis.

25. *Develop helicopters for civil use.* Concurrent with military helicopter development, interested government agencies should encourage civil helicopter

development for inter-airport shuttle services, and for short-haul use, emphasizing safety, reliability and public toleration factors.

## New Equipment Installed

(Continued from page 53)

ILS. They also will be installed at about 75 additional airports where ILS is scheduled.

The new transmitters and associated antennas are designed to avoid any change in the glide slope angle caused by snow on the ground, changes in the water table, etc. They will increase the usable range of the glide slope from 10 to about 30 miles, and provide more precise on-and-off-course guidance.

An improved monitoring system is being installed with the new transmitters. Independent receivers continuously sample the output of the transmitter. If it changes in path width, path angle, or signal level, red lights flash and bells ring in the control tower. The traffic controller can then immediately switch to the standby transmitter.

## Official Actions . . . CAB

(Continued from page 61)

designated. (Feb. 27.)

E-6147 approves, subject to stated terms and conditions, the plan for the dissolution of Inland Air Lines and the distribution of its assets to Western Air Lines as filed with the Board on Feb. 4, 1952. (Feb. 27.)

E-6148 denies without prejudice the application of Riddle Aviation Company for approval of a charter flight and for exemption to carry a person accompanying cargo. (Feb. 27.)

E-6149 opinion and order dismiss petition of Eastern Air Lines for a mail rate for its overseas route to Puerto Rico for the period July 8, 1947, to April 7, 1948, and order that the date of inauguration of a final mail rate proceeding for the Miami-San Juan route is April 7, 1948. (Feb. 28.)

E-6150 denies motion of American Air Transport and Flight School, Inc., that Dockets Nos. 5311, 5312, 5313, and 5314 be consolidated for hearing with the Revocation Proceeding, Docket No. 5209. (Feb. 28.)

E-6151 amends Board order E-5480 so as to exempt until December 31, 1952, Resort Airlines from the provisions of the Act and the Economic Regulations, subject to stated terms, conditions, and limitations, so as to permit it to engage in air transportation of agricultural laborers between points in the United States, and the West Indies and Caribbean. (Feb. 28.)

E-6152 institutes investigation of and suspends from March 2, 1952, to May 30, 1952, certain reduced fares proposed by Air Transport Associates, Inc., for air transportation from Anchorage and Fairbanks, Alaska, to Seattle and Everett, Wash., orders that the investigation be consolidated into the proceeding in Docket No. 5067. (Feb. 28.)

(Continued on page 63)

TITLE	NO.	Civil Air Regulations				Civil Aeronautics Manuals			
		Price	Date	Amend-ments	Special Regulations	Price	Date	Supple-ments	Amending Releases
AIRCRAFT									
Certification, Identification, and Marking of Aircraft and Related Products . . . . .	1	\$0.05	1/15/51	1					
Airplane Airworthiness; Normal, Utility, Acrobatic, and Restricted Purpose Categories . . . . .	*8	.15	11/ 1/49	8	858			9	
Airplane Airworthiness . . . . .	4a	.20	4/ 7/50		858, 875	(*)	7/ 1/44		198,202
Airplane Airworthiness; Transport Categories . . . . .	*4b	.25	7/20/50	6	858, 861			7	
Glider Airworthiness . . . . .	5	.05	3/ 5/52						
Rotorcraft Airworthiness . . . . .	6	.10	1/15/51	2	858			1	
Aircraft Airworthiness; Restricted Category . . . . .	8	.05	10/11/50			.60	1/ 1/51	1	
Aircraft Airworthiness; Limited Category . . . . .	9	.05	11/ 1/49	1					
Aircraft Engine Airworthiness . . . . .	13	.05	3/ 5/52		858				
Aircraft Propeller Airworthiness . . . . .	14	.05	3/ 5/52		858	.20	5/ 1/46		
Aircraft Radio Equipment Airworthiness . . . . .	16	.05	2/18/41			Free	2/18/41	1	62,373
Maintenance, Repair, and Alteration of Airframes, Powerplants, Propellers, and Appliances . . . . .	18	.05	6/15/52		877	1.25	8/ 1/49	1	
AIRMEN									
Pilot Certificates . . . . .	20	.05	8/ 1/49	10				1	
Airline Transport Pilot Rating . . . . .	21	.05	8/15/49	4					
Lighter-than-air Pilot Certificates . . . . .	22	.05	11/ 1/49	6					
Mechanic and Repairman Certificates . . . . .	24	.05	6/15/52	2	858			1	
Parachute Rigger Certificates . . . . .	25	.05	9/ 5/50						
Air-traffic Control-tower Operator Certificates . . . . .	26	.05	11/ 1/49	5				4	
Aircraft Dispatcher Certificates . . . . .	27	.05	11/ 1/49	4					
Physical Standards for Airmen . . . . .	29	.05	10/ 1/49	2				2	
Flight Radio Operator Certificates . . . . .	33	.05	2/15/50	5				3	
Flight Navigator Certificates . . . . .	34	.05	11/ 1/49	4				2	
Flight Engineer Certificates . . . . .	35	.05	11/ 1/49	4				2	
OPERATION RULES									
Air Carrier Operating Certification . . . . .	40	.05	9/ 1/49		356, 368, 366, 367, 369, 378			7	
Certification and Operation Rules for Scheduled Air Carrier Operations Outside the Continental Limits of the United States . . . . .	41	.05	11/15/49	5	856, 367, 381			12	
Irregular Air Carrier and Off-Route Rules . . . . .	42	.10	6/ 1/49	12	367, 368, 875, 878, 879	1.00	9/ 1/49	6	
General Operation Rules . . . . .	43	.05	8/ 1/49	7				8	
Foreign Air Carrier Regulations . . . . .	44	.05	9/ 1/49					1	
Commercial Operator Certification and Operation Rules . . . . .	45	.05	11/15/49	1	856, 367, 375				
Operation of Moored Balloons . . . . .	48	.05	9/ 1/49						
Transportation of Explosives and Other Dangerous Articles . . . . .	49	.10	7/20/49						
AIR AGENCIES									
Airman Agency Certificates . . . . .	50	.05	10/ 1/49	4		.50	8/—/51		
Ground Instructor Rating . . . . .	51	.05	10/10/49	2				1	
Repair Station Certificates . . . . .	52	.05	6/15/52					1	
Mechanic School Certificates . . . . .	53	.05	6/15/52			Free	5/—/40		
Parachute Loft Certificates and Ratings . . . . .	54	.05	10/15/49	1		.15	7/1/48		
AIR NAVIGATION									
Air Traffic Rules . . . . .	60	.10	8/ 1/49					2	
Scheduled Air Carrier Rules . . . . .	61	.10	9/ 1/49	7	356, 368, 366, 367, 368			11	
Notice and Reports of Aircraft Accidents and Missing Aircraft . . . . .	62	.05	5/ 1/49						

NOTE: Items for which a price is listed may be obtained from the Superintendent of Documents, Government Printing Office, Washington 25, D. C. Remittances should be made by check or money order payable to the Superintendent. Amendments and Special Regulations may be obtained from the Publications Section, Civil Aeronautics Board, Washington 25, D. C. Free Manuals, Supplements and Releases are available from the Office of Aviation Information, Civil Aeronautics Administration, Washington 25, D. C.

\* Pending publication of a complete Manual, supplements containing rules, policies, and interpretations of the CAR's will be issued in the form of pages for a Manual and will be available free of charge until release of the Manual.

\* Certain aircraft may comply with the provisions of this Part or Part 4a. Interpretation No. 1 adopted March 7, 1952.

\* Out of print.

## Official Actions . . . . CAB

(Continued from page 62)

E-6153 authorizes Ozark Airlines to suspend service temporarily at Dyersburg and Jackson, Tenn., on segment No. 5 (a) of route No. 107, subject to stated provision; grants the City of Dyersburg and the State Tennessee Bureau of Aeronautics leave to intervene, otherwise denies protests filed by them. (Feb. 28.)

E-6154 authorizes All American Airways to inaugurate service immediately to New York, N.Y., through use of the New York International Airport, subject to any necessary amendment of its air carrier operating certificate. (Feb. 28.)

E-6155 authorizes Trans-Canada Air Lines to inaugurate service immediately to New York, N.Y., through regular use of the New York International Airport, subject to any necessary amendment of its operating certificate. (Feb. 28.)

E-6156 grants motion of Trans World Airlines and orders that the proceeding in the matter of its application (Docket 5423) for amendment of its certificate for route No. 2 so as to eliminate Lancaster, Pa., be consolidated into the proceeding in the matter of the application of All American Airways for amendment of its certificate for route No. 97. (Feb. 29.)

E-6157 authorizes, with stated provision, Southwest Airways Company to omit service to Vallejo-Napa, Calif., on route No. 76 during hours of darkness until such time as the Napa County Airport is adequate for its use on such flights. (Mar. 3.)

E-6158 approves, subject to stated terms and conditions, certain agreements involving Eastern Air Lines, Trans Caribbean Air Cargo Lines, and various other air carriers, relating to lease of aircraft, and exempts the air carriers from the public hearing requirement of section 408 (b) of the Act until further order of the Board. (Feb. 29.)

E-6159 grants the Chamber of Commerce of Honolulu leave to intervene in the Honolulu-United States Excursion Fare case. (Feb. 29.)

E-6160 grants New York Airways, Inc., leave to intervene in the matter of the application of Island Air Ferries, Inc. for amendment of its certificate. (Feb. 29.)

E-6161 grants the Postmaster General leave to intervene in the matter of the applications by the City of Clinton, Iowa, and Clinton Airport Commission for amendment of the certificate of Braniff Airways and Ozark Airlines. (Feb. 29.)

E-6162 grants the Mississippi Aeronautics Commission, various cities and chambers of commerce in Georgia, Louisiana, Alabama, Mississippi, Florida, and South Carolina, and Capital Airlines, Delta Airlines, Eastern Air Lines, National Airlines, Air Line Pilots Association, Int'l., and the Postmaster General leave to intervene in the Southern Certificate Renewal case. (Feb. 29.)

E-6163 institutes investigation of and suspends through June 2, 1952, certain fares and provisions proposed by Eastern Air Lines and Pan American World Airways between New York and San Juan, P.R.; orders proceeding assigned for hearing before an examiner of the Board at a time and place to be designated. (Mar. 3.)

E-6164 dismisses petition of Air Transport Associates, Inc., for vacation of orders Nos. E-5590 and E-5613 insofar as they suspend the operation of fares from Anchorage and Fairbanks, Alaska, to Seattle Wash. (Mar. 3.)

E-6165 fixes certain temporary mail rates for Northern Consolidated Airlines from Jan. 1, 1951, through Dec. 31, 1951, over its routes certificated for the transportation of mail. (Mar. 3.)

E-6166 opinion and order deny the application of Lawrence M. Coleman, d/b/a Samoan Airlines for a certificate authorizing scheduled air transportation of persons, property, and mail between Pago Pago, American Samoa, and Apia, British Samoa. Approved by the President Feb. 29. (Jan. 9.)

E-6167 approves certain agreements embodied in resolutions adopted by mail vote of traffic conference No. 2 of IATA between Pan American World Airways, various air carriers, foreign air carriers, and other carriers relating to rate matters. (Mar. 3.)

E-6168 denies petition of Southwest Airways Company, and the City and Chamber of Commerce of El Centro for reconsideration of the Board's order No. E-6040 in the Reopened Addi-

tional California-Nevada Service case. (Mar. 4.)

E-6169 institutes investigation of and suspends through June 11, 1952, a reduced fare proposed by Caribbean American Lines between Kansas City, Mo., and Chicago, Ill. (Mar. 4.)

E-6170 denies motion of United Air Lines that the Board include as an issue in the proceeding concerning the application of Braniff Airways and Mid-Continent Airlines for approval of an Agreement of Merger the question of whether approval should not be conditioned on the divestment or surrender of Mid-Continent's temporary certificate for route No. 106. (Mar. 4.)

E-6171 dismisses, for lack of prosecution, the applications of various municipalities filed in Dockets Nos. 3329, 3339, 3398, 4040, and 4885 in the Southern Certificate Renewal case. (Mar. 4.)

E-6172 grants the Prescott Chamber of Commerce leave to intervene in the Frontier Route 93 Renewal case. (Mar. 4.)

E-6173 opinion and order amend the certificate of Capital Airlines for route No. 14, effective May 3, 1952, to permit it to serve Chicago, Ill., on flights carrying property and mail only, which serve Milwaukee, Wis., and Minneapolis-St. Paul, Minn., subject to a restriction. (Mar. 4.)

E-6174 denies application of Chicago Southern Airlines for an exemption so as to transport local traffic between Houston, Tex., and New Orleans, La., on its international route. (Mar. 4.)

E-6175 opinion and order suspend Letter of Registration No. 4 of American Air Transport and Flight School, Inc., pending a decision, or until further order of the Board, in the American Air Transport and Flight School, Inc., Enforcement Proceeding. (Mar. 5.)

E-6176 orders Ozark Airline to show cause why the Board should not establish certain temporary mail rates over its entire system. (Mar. 5.)

E-6177 institutes investigation of and suspends through June 4, 1952, certain fare increases proposed by Western Air Lines; orders proceeding be assigned for hearing before an examiner of the Board at a time and place to be designated. (Mar. 5.)

E-6178 approves certain agreements involving Pan American World Airways and Eastern Air Lines, various other air carriers, and other carriers relating to intercompany arrangements. (Mar. 5.)

# Board Considering Adoption of Rule For Air Carrier Insurance Coverage

The Civil Aeronautics Board last month announced that it is considering adoption of insurance requirements for all air carriers and foreign air carriers other than freight forwarders. Both domestic and international freight forwarders are already subject to certain insurance requirements under the Board's economic regulations.

The announcement accompanied issuance of a draft release outlining the proposed regulation in tentative form and inviting the comments of all interested persons. The Board stressed the tentative nature of the proposal and requested the assistance of both American and foreign aviation and insurance interests in working out the details of the program. At the same time the Board stated that it is firmly resolved to require the air transport industry to maintain adequate insurance against potential liability for injury or damages to passengers or to third persons and property on the ground.

The Board called attention to the fact that most air carriers and foreign air carriers involved already have insurance coverage against such liability in greater amounts than the proposed minimums and that accordingly the effect of the proposal would merely be to make accepted business practice a formal requirement of the regulations. It was felt that, notwithstanding the financial ability of most air transport enterprises to meet such liability as they are likely to incur, there are enough not so favorably situated to justify a formal insurance requirement for protection of the public. Moreover, it was felt that the proposed regulation would serve to protect the assets of air carriers against the effects which losses from accidents might otherwise have, and thus help assure the continued safety and quality of their services.

**Independent Studies Conducted.**—The proposal is based both upon independent studies conducted by the Board over considerable periods of time and upon data obtained by canvassing the United States air transport industry with respect to their current insurance coverage. Over 2,500 air carriers were circularized, including 48 certificated carriers, 76 large irregular carriers, 2,321 small irregular carriers, and 118 Alaskan carriers.

The proposed rule contains the following schedule of minimum coverages:

**Schedule of Minimum Coverages**

	Type of Aircraft	
	12,500 lbs. or under*	Over 12,500 lbs.*
Passenger liability:		
Per person.....	\$25,000	\$25,000
Per accident.....	\$25,000 (times total number of passenger seats in aircraft)	\$25,000 (times total number of passenger seats in aircraft)
Public bodily injury liability:		
Per person.....	\$25,000	\$ 25,000
Per accident.....	\$100,000	\$250,000
Property damage:		
Per accident.....	\$100,000†	\$250,000

\*Maximum certificated take-off weight.

The Board stated that this schedule of minimum coverages was based upon a number of factors, including losses experienced from accidents in the past, the existing industry practice on insurance, and other governmental insurance requirements. It was pointed out that the different levels provided for aircraft above and below 12,500 pounds maximum certificated take-off weight were designed to give recognition to the likelihood that an accident to a lighter aircraft will, on the average, do less damage to persons and property on the ground than one involving heavier aircraft. The Board further explained that the 12,500-pound figure was considered appropriate because

it is used as a dividing line between light and heavy aircraft for other purposes in the Board's economic and safety regulations.

The proposed insurance regulation would have the effect of requiring insurance coverage against the specified kinds of liability for all flights of air carriers or foreign air carriers within the scope of the Board's economic jurisdiction, whether or not within the specific operating authorization granted the carrier by the Board. The coverage required for passenger liability would not be limited geographically, so long as the flight is to or from a point in the United States; but the coverage required for public liability for bodily injury or property damage would be geographically limited to areas within the United States. For this purpose the "United States" would be defined as "the several states, the District of Columbia, and the several Territories and possessions of the United States, including the Territorial waters and the overlying air space thereof".

The details of the coverage required under the rule would be made effective through provisions that the insurance will be regarded as satisfactory only if there is attached to the policy a specific endorsement containing the detailed protective features specified in the regulation. It is made clear that limitations of liability imposed by law or limitations of liability in the contract of carriage given effect by the courts would in no way be affected by the regulation.

## CAA Warns Pilots on Using High Dosages of Amphetamine

Pilots should not use amphetamine or its derivatives, especially in the high dosages employed for reducing weight, the Civil Aeronautics Administration, U. S. Department of Commerce, has warned.

Dr. W. R. Stovall, Chief of the Medical Division of CAA's Office of Aviation Safety, said a similar warning has been issued by the Director of Air Services of Canada, following two recent fatal accidents in England involving pilots who were dieting and taking dextedrine in efforts to lose weight.

Amphetamine and its derivatives, such as benzedrine and dexedrine, are used principally to stimulate the central nervous system and, in obesity, to control the weight, Dr. Stovall said. "It is the action on the central nervous system that may cause dangerous effects in pilots," he added. "Whether or not any dangerous effect will result from these drugs depends upon the dosage taken and the susceptibility of the individual to the drug. We believe that pilots should be warned against taking the larger dosages of these drugs such as given for obesity. These drugs may not be safe even in small dosages, for they increase anxiety and excitability and might thereby cause a pilot to react inappropriately in a situation of stress."

## Piedmont's Certificate Renewed

The Civil Aeronautics Board last month renewed the certificate for Piedmont Aviation, Inc., up to December 31, 1957, with certain modifications. Piedmont, based at Winston-Salem, N. C., is a local service airline operating in Virginia, West Virginia, Ohio, Kentucky, Tennessee, North Carolina, and South Carolina.

## CAB Rejects Proposal To Use Nautical Mile

The Civil Aeronautics Board on June 4 decided, by a three to two vote, not to put into effect proposed regulations which would convert units of measurement for speed and distance in civil air transportation from statute miles to knots and nautical miles.

As a result of the evidence introduced at an oral argument before the Board by various representatives of the civil aviation industry, the military establishments, and the Civil Aeronautics Administration, the Board decided that there is insufficient justification at this time to warrant adoption of the proposed changes. The Board said that many elements of the aviation industry expressed strong opposition to changing from the statute mile system, to which they had long been accustomed, and that the arguments against the change charged that the conversion would be not only an unnecessary burden, but would introduce some degree of hazard into private and commercial air operations.

The Board said that it recognized that, without prejudice to the necessity for one standard system at some future time, there nevertheless would be no significant adverse effects on air safety involved in the use of separate systems by military and civil operations under the presently used system of air traffic control and communications. The Board is also cognizant of the fact that there has not yet been established a sufficiently clear understanding of the actual effects of the proposed standardized system by many of those who expressed opposition.

## D. L. Posner Heads Safety Technical Staff

David L. Posner has been appointed chief of the Technical Staff Division of the Office of Aviation Safety, CAA, it has been announced by E. S. Hensley, Director. He succeeds E. C. Marsh, appointed chief of the Aviation Safety Division of the First Region in the recent reorganization of the Office of Aviation

Mr. Posner is an honor graduate of the College of the City of New York in mechanical engineering and has taken post graduate work in mechanical and aeronautical engineering at the University of Connecticut, New York University, and Catholic University. He is a member of the engineering honor fraternity Tau Beta Pi.

He was employed by Pratt and Whitney Aircraft Co. in the engineering department from 1939 to 1941, and for a short time was engineer in the transit system examining division of the New York City Civil Service Commission.

In 1942 Mr. Posner was appointed to the CAA Aircraft Engineering Division and since January 1947 has been chief of the Powerplant Installation Section. During World War II, he served in the maintenance engineering division of the Air Transport Command. He is a member of the National Advisory Committee for Aeronautics committees on fire protection and icing problems. He was a member of the CAA delegation to the ICAO Airworthiness Division meeting at Montreal in 1951.

In his new capacity, he will assist the Director with technical problems in the field of aviation safety and will coordinate technical matters which cross the boundaries of various divisions of the Office of Aviation Safety.

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